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Nutritional Status of Children

I. Expanded Opportunities for Dietitians[1]

ICIE G. MACY, Ph.D., Sc.D.

Research Laboratory, Children's Fund of Michigan, Detroit[2]

LIVING complacently in the "age of science," with television, supersonic flight, and the atom bomb fast becoming commonplace, it is prudent to remember that the construction and functioning of inanimate machines are simple in comparison with those of animate bodies—that materials consisting of molecules do not compare in complexity with tissues composed of living cells which grow and reproduce. It is fundamental that the development of an applied science directly parallels the accumulation of knowledge in the more exact sciences which are to be applied. Thus, organized medicine in the United States dates only from the establishment of the American Medical Association in 1847, and its progress as a science has occurred with the discoveries of chemistry, biology, physics, and mathematics. With the expansion of knowledge, investigators have been forced into ever narrower fields of endeavor, resulting in the division of the sciences into more specialized groups.

Nutrition, the offspring of physiology and chemistry, dates its history as a science from early in the twentieth century (1). By 1917, when the American Dietetic Association was founded and embarked upon its program of organized medical application of the knowledge of nutrition, a vast array of information concerning foods and their roles in nutrition had been accumulated. In the early years knowledge of nutrition was limited, and the dietitians' efforts were concerned mainly with protein, energy, some minerals, and a few foods for specific body needs, such as citrus fruits to prevent scurvy and milk to provide calcium. The few dietitians available were employed principally in hospitals and in the public health service. With knowledge of the vitamins, the amino acids, and the importance of the interrelationship of food components in a diet, the responsibility of dietitians has expanded into the fields of preventive and therapeutic medicine. The task of the thousands of dietitians employed today in research laboratories, schools, hospitals, institutions, and restaurants is much more than the provision of calories, protein, and a few minerals; dietitians have been given the obligation to strive for optimal nutrition of young and old, in sickness or in health, in luxury or in squalor.

The dietitian is aware of the rapidly changing panorama of science as the relation of nutrition to health is unfolded. As responsibility has increased, so has the necessity of closer contact with new methods, techniques, and results of nutritional research. In response to the stimuli of World War II, nationwide efforts toward improved nutrition were inaugurated. The work of the wartime agencies is being continued and their programs projected for the peacetime population. In the execution of these plans, dietitians compose a group which holds one of the keys to success, and they have in their hands the power to prevent a repetition of some of the occurrences following World War I.

The job of building health, strength, and stamina in the adults of a population is best accomplished by concerted effort throughout the formative stages of intra-uterine life, infancy, childhood, and adolescence. By 1940, in spite of the advances made by the science of nutrition since the White House Conference for Child Health and Protection (2) in 1930, there had been little improvement in the health of our youth. It is true that boys and girls were attaining greater size; the heights and weights of the boys entering Harvard and of the girls entering Vassar were greater than those of their parents. However, the results of studies, such as the one at Hagerstown, Maryland, gave little comfort to a nation engaged in a conflict of survival. In that investigation the young children in the community were carefully examined and their physical conditions recorded in

[1] Received for publication November 21, 1947.

[2] The Research Laboratory of the Children's Fund of Michigan was extended the privilege by Otto Bessey and Oliver Lowry of sending a representative to the Medical Research Institute, Department of Health of the City of New York, for training in their microchemical blood techniques shortly after they were developed. Following this generous courtesy, studies of the nutritional status of children in the care of several public and private agencies in Michigan were projected, and their accomplishment provided the material for the series of papers of which this is the first.

1930. Re-examined in 1943, the children who had been inferior physically in 1930 had the same defects when they were examined as prospective soldiers of World War II. It is likely that action taken during the decade after the White House conference, as was urged, would have made it necessary only to recondition nutritionally many soldier candidates of 1940–1945 who were rejected or their physical status brought up to standard at a huge cost to the taxpayers.

The National Nutrition Conference for Defense in 1941 brought out the fact that nutritional deficiencies, directly or indirectly, had disqualified for military service about one man in seven. In response to the need for a yardstick with which to evaluate dietaries, the Food and Nutrition Board of the National Research Council established Recommended Dietary Allowances which, first published in 1943 and revised in 1945 (3), have served as standards for feeding the armed forces and civilians and for evaluating the food needs of other countries and the value of supplies sent to them. A review in 1943 by the Committee on Diagnosis and Pathology, Food and Nutrition Board, National Research Council (4), of material contained in widely scattered journals showed that an appreciable percentage of diets do not contain more than 50 per cent of the allowances recommended by the Food and Nutrition Board, and that many more diets are deficient by less than 50 per cent, with widespread prevalence of deficiency states, largely mild in intensity. Examinations by the armed services, dietary and chemical studies of large and small groups, and clinical observations affirm the incidence of poor diets and malnutrition in North America (5–9).

Only within the past few years has it been possible to establish valid concepts of malnutrition and nutritional status. Kruse (10) and Jolliffe (11) presented thorough discussions of medical evaluation of nutritional status and of conditioned malnutrition, respectively, in the *Handbook of Nutrition* published by the American Medical Association. Malnutrition is a general term indicating nutritional inadequacy. It may signify only slightly inferior nutritional status produced by failure to provide all of the requirements for good nutrition—the right foods and ample amounts at the proper time. Malnutrition may occur also in the presence of dietary adequacy. There is general agreement with Kruse (10) that nutritional failure should denote a deficiency in the body tissues rather than in the diet. Nutritional deficiencies from inadequate diets are considered *primary* deficiencies; when due to other factors, they are considered as conditioned or *secondary* deficiencies. The latter result from conditions which interfere with the ingestion, absorption, or utilization of essential nutriments, and from factors that produce increased requirements, as in growth or destruction in the body.

Frequently, skeptics say that underfeeding and misfeeding, both of which are contributors to malnutrition, are overemphasized in this country. Because deficiency diseases are not obvious and widespread among the impoverished peoples of the wartorn countries, they believe the vital health values of vitamins, amino acids, and minerals may have been exaggerated. Investigators of nutrition, however, are aware that *an unbalanced diet* is more harmful than underfeeding. Quantitative dietary inadequacy produces nutritional deficiencies only when the food intake falls below the level needed to maintain body functions. The factors of greatest importance in the subsistence of underfed people without evidence of deficiency disease are the lowered requirements for all nutriments which accompany the smaller food intake and the greater efficiency in utilization of the lesser quantities of nutriments. In the United States misfeeding is a much larger problem than underfeeding. With ingestion of sufficient food to allay hunger, the diet still may not be adequate in meeting the chemical needs of the body. Misfeeding may occur over short or long intervals without causing complaint by the individual until clinical evidence of deficiency disease appears. With children, especially, chronic misfeeding, which may date from birth, frequently results in the body becoming "conditioned" to a poor diet. While such bodies may not make a physiologic protest against the lack of proper nourishment, the results are demonstrated by poor nutritional status. There is little doubt that poor nutrition over extended periods in childhood produces an adult of inferior physique, less stamina, and lowered resistance to disease.

Three million babies are born in the United States each year, and there are approximately 43 million children under the age of eighteen years in this country (12). Our present knowledge of nutrition makes it clear that the food an individual eats determines his health, his strength, stamina, nervous condition, morale, and mental acuteness. Proper food is of paramount importance to normal growth and development in childhood. It is probable that the percentage of individuals who are inadequately nourished is as great among the children of this country as it is in the entire population. On this basis, 15 to 30 million children are improperly fed. The problem is both preventive and corrective. For prevention, the production and distribution of sufficient food must be maintained; more careful preparation and service of food to conserve its original nutritive value must be more generally put to use; dietary education must be intensive and extensive. For correction, the prime need is for greater skill and better methods of detecting deficiency states. Although incomplete, the evidence now available indicates that there is a real difference, as measured in terms of growth and development and general health, between optimum and adequate nutrition. Millions of children in various stages of growth

and development, with varying needs and inheritances, must be more effectively fed if the nation's health is to be improved. In this it is essential that the dietitian play an important role.

Physicians, nutritionists, and health authorities have devoted their energy toward developing more satisfactory methods of evaluating nutritional status. Recent progress has contributed greatly to the clinical and physiological detection of deficiency states at earlier stages in their development. Insofar as children are concerned, it has long been appreciated that increase in height or weight has its limitations in the evaluation of nutritional state. Heredity destines some children to have small bones, others large; some to be short and stocky, others tall and thin. An individual child progresses according to his biological time, with periods of accelerated growth and periods in which weight is not gained. Variability and change are prominent characteristics of the formative period. Though scales may not detect an increase in weight, analyses of food consumed and of urine and feces excretions may demonstrate that many nutriments are being retained to build muscle and bone. Water and fat may compose large gains in weight, but such "growth" may not be a health asset nor contribute to the formation of a nutritionally stable body. Conversely, bone and muscle may be forming but the quantities may be outweighed by losses of fat and water from the body.

Kruse (13) described the sequence of development of a deficiency disease as: "lowered concentration of the essential factor in the blood; depleted storage in the body's reservoirs; diminished excretion in the urine; microscopic changes in tissues; gross morphological and functional change." Numerous investigators have been contributing to the development of appropriate, sensitive methods for the detection of the various deficiencies and of biochemical procedures for evaluating physiological status. Among the biochemical methods applicable to use in public health surveys are those developed by Bessey and Lowry which made possible these studies of the nutritional status of children in the care of agencies.

Dietetics has ceased to be an art based primarily upon the formation of adequate menus formulated from published standards on food composition. Opportunities for service in nutritional research, teaching, and application are constantly enlarging as increased knowledge of nutrition continues to provide evidence of wide variation in the requirements of individuals, and of the same individual under different conditions. Biochemical research is producing methods of determining nutritional status without cumbersome and expensive equipment and with little inconvenience to the subject. Simple, more accurate, comparable, and practical methods of determining food intake are badly needed (14), and in their development and application the participation of biochemists, nutritionists, and dietitians is necessary.

Today, the basic factors in international relations are food, agriculture, and nutrition. National economic policies with regard to food supply are now being related, not so much in terms of dollars and cents but in terms of satisfying the physiological needs of man, regardless of his race, creed, or color. With the extreme food shortages and hungry millions existing in the world, it is essential that all available nutriments be conserved and shared. The Food and Agriculture Organization of the United Nations believes that the goal of freedom from want of food suitable and adequate for the health and strength of all peoples can be achieved (15). The recent establishment of the World Food Board, the objectives of which are to promote concrete measures for increased food production, to build up a world reserve of food, and to stabilize prices on the international market at levels fair to producers and consumers, is a step in the right direction. In considering the present emergency and long term measures, the Board realizes that people who exist continuously on diets providing less than the minimum daily requirements may not be able to stand the stresses and strains of living. Any diet that fails to furnish the average amount of each of the nutriments needed to maintain the body is unsafe nutritionally, for every person should receive a diet providing a margin of safety. Bad environment, including poor food, is one of the most frequent deterents to good health, efficient living, and world peace. Indeed, Todd (16) emphasized that adult man is "the outcome of growth enhanced, dwarfed, warped, and mutilated by the adventures of life."

Each contribution to a fuller understanding of the relation of diet to nutritional status of man at any age, no matter how small a segment of the population it may encompass, contributes to the sum total of our knowledge of the physiological value of foods and to the enlarging of our armamentarium of methods for more precise evaluation of physiological state. The following papers in this series give the results of observations on nutritional reconditioning of children that took place during a six-week stay in a health camp and the nutritional status and food consumption of groups of children in the care of agencies. They present the results of the practical applications of some of the newer microchemical blood methods and urine excretion tests for evaluating nutritional status and serve as criteria for evaluating the adequacy of food consumption. Because children's institutions with fixed budgets have difficulty in coping with rising prices and shortages of essential foods, the present studies are being made available as a series to focus attention upon enlarging responsibilities of the dietitian in safeguarding the health of children in times of economic stress and to point up the application of newer techniques that may be used in determining the adequacy of diets as they may be reflected in the physiological state of the individual.

It is inevitable that in the future the dietitian will share in the responsibility of meeting the physiological requirements of individuals on the basis of their nutritional status. Increasingly, the dietitian must pool her efforts with those of the physician, the nutritionist, and the biochemist, both in the conduct of investigations of nutritional status and in the application of knowledge derived from investigations employing methods similar to those used in our survey of the nutritional status of children in the care of agencies.

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Toxic Effects of Agene

Agene (nitrogen trichloride) has been extensively used for more than twenty years to produce physical maturation changes in flour from certain types of wheat, so that dough stickiness and other undesirable characteristics of a technological nature can be avoided.

Recently studies have shown several species of animals to be susceptible to a toxic principle or principles produced by the action of Agene on the proteins of flour or on certain other food proteins. In all of these studies the level of Agenized flour necessary to produce a reaction has been substantially above the level used in flour for the ordinary human diet. In dogs, in which susceptibility apparently is highest, the disease produced is called canine hysteria. Comparable symptoms have been obtained in rabbits, cats, and ferrets, although considerably larger and more prolonged dosing was required to produce them in cats and ferrets. Monkeys showed no convulsions, but in some instances have been reported to display certain encephalographic changes after consumption of highly Agenized flour. In rats an excretion of porphyrin has been reported, but agreement regarding its significance has not been reached. Chickens, guinea pigs, and hamsters evinced no toxic reactions.

A study on twelve human beings, reported by C. A. Elvehjem of the University of Wisconsin, revealed no symptoms or encephalographic changes after eating Agenized flour or Agenized gluten in amounts and for periods of time which would produce hysteria in dogs.

In view of the susceptibility of several mammalian species, the Food and Nutrition Board of the National Research Council believe there is a definite risk of injury to human beings, and that it would be unwise to contemplate the continued use of Agene beyond the minimum period required for readjustment. It is also suggested that alternative processes of flour treatment, such as chlorine or chlorine dioxide, should be encouraged so that suitable commercial equipment and controls may be made available to mills as early as possible. However, such processes should be thoroughly explored to be sure that flour so treated is free from toxic effects.

It is further recommended by the Board that investigations should be continued (a) to isolate and identify the toxic product or products involved, (b) to determine more conclusively whether human beings are in some degree susceptibile, (c) to determine precisely the toxic dosage for those species which are susceptible, and (d) to develop a quantitative determination of the toxic substance for flour inspection purposes.—*From a statement by the Food and Nutrition Board, November 7, 1947.*

Nutritional Status of Children

II. The Organization of a Survey of Child-Caring Agencies[1]

ELSIE Z. MOYER, ELIOT F. BEACH, ABNER ROBINSON, MARGARET N. CORYELL, SOL MILLER, CHARLOTTE RODERUCK, MARJORIE LESHER, and ICIE G. MACY

Research Laboratory, Children's Fund of Michigan, Detroit

BROKEN homes and the loss of parents often make it necessary that children be given institutional care. The great mental and physical stresses consequent to uprooted lives are often productive of malnutrition. Child-caring agencies, therefore, find it essential to furnish food in sufficient quantity not only to meet the varying requirements of activity, growth, and development but also to compensate for previous dietary inadequacies and to provide for nutritional "conditioning" or "reconditioning." The present studies were initiated to supplement the scanty information available concerning the nutritional status of children being cared for in groups and to gain knowledge of the conditioning processes which occur and the situations in which they occur with the greatest speed and efficiency. In the determination of nutritional status an evaluation of diet and feeding and the composition of blood and urine is procured. In addition, such a study provides an opportunity to observe the children within their environment and to determine the amounts and kinds of foods used, the purchasing systems, handling, cooking and service, and each child's reaction to the menus served and to his environment. Often a person not directly connected with the institution views a situation more objectively than does its staff. This objective viewpoint may result in constructive suggestions for handling food with lowered overhead and increased preservation of its nutriments.

Group feeding is usually confined by a budget, frequently established for an entire year without provision for possible changes in food cost from month to month. Economy and good nutritional practices are thoroughly compatible, and frequently both can be improved in conjunction with a nutritional status survey. More efficient arrangement of utensils and storage facilities, modern equipment, and the use of a wider variety of foods result in economy of time and money. Both economy and improved nutrition result from the elimination of poor dietetic practices, such as "watering" fruit juices, overcooking vegetables, adding soda (which preserves color but destroys vitamin C), or overemphasizing the milk intake at the expense of equally important fruit juices. Frequently, too, personal food prejudices of cooks or supervisors exclude nutritious foods from the diet of the group, and the dislike of the personnel for cod-liver oil may be the reason children do not receive it.

The plan for a survey of the nutritional status of groups of children under the supervision of child-caring agencies was designed to contribute information relevant to several important dietetic and public health problems, in addition to furnishing the organizations an evaluation of dietetic procedures in use and the nutritional status of the children in their care. Boys and girls of different ages, living under varying conditions and with diverse backgrounds, were included so as to permit comparisons based on these factors. Repeated determinations were obtained for the same children in order to estimate individual variation, and for the same children in spring and fall to evaluate seasonal differences. Diets were evaluated by inspection, inventory, and quantitative methods to determine the relative, practical value of each, and the nutrient value of weighed diets was determined by analysis and by calculation from published values. Together, all of the investigative procedures serve as a demonstration of the practicality of the new micromethods in surveys of the nutritional status of population groups (3).

SUBJECTS OF THE INVESTIGATION

The five groups of children in the survey included youngsters of both sexes ranging in age from three to eighteen years. Two of the organizations are located

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in suburbs of Detroit: one cares for both girls and boys and is operated on the "cottage plan"; the other serves only boys and is organized on a "dormitory" basis. The other three agencies supervise children of both sexes: one is an orphanage in a city of 16,000 in the Upper Peninsula of Michigan; another is an orphanage in a small Michigan village; and the third is a camp on the shore of Lake Superior, operated each summer for the benefit of underprivileged children.

TABLE 1

Age distribution of children studied

AGE	NUMBER IN METHODIST CHILDREN'S VILLAGE		NUMBER IN BAY CLIFF HEALTH CAMP		NUMBER IN ST. JOSEPH'S HOME		NUMBER IN HOLY FAMILY ORPHAN'S HOME		NUMBER IN BOYS REPUBLIC
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
yr.									
18		1							
17		1		1					1
16		1		1	1	2		1	20
15	2	4	2		1	2	4		27
14	2	1	1	1	1	3	4		12
13	3	3	4	5	1	1	5	4	1
12	6	2	4	6	1	2	7	4	
11	3	4	12	5	4	1	3	2	
10	4	3	9	8	1	2	10	3	
9	5	4	14	6	1		11	3	
8	3	2	4	6	1	4	12	3	
7	4	2	6	2	3	2	5	5	
6	1		1	3	4	2	4	4	
5					1	3	6	5	
4					2	1	7	3	
3					2	1	2	2	
2				1					

The Methodist Children's Village, Redford, a suburb of Detroit, provides a home for children without one or both parents, and for children whose parents are temporarily or permanently unable to care for their youngsters. The children live in groups of nine to twelve, with a housemother experienced in handling children. Each group occupies a separate cottage, and superior school and recreational facilities are provided. Studies were conducted at the Children's Village in the spring and fall of the same year. In the spring, fasting blood and urine samples were collected on three successive days from each subject and in the fall on two successive days. Oral loading tests of thiamine and riboflavin were made on the final day of each study period. The children's heights and weights were obtained at the times of the studies, and the records were procured of the periodic physical examinations by the staff pediatrician. The dietary at the Children's Village was evaluated by the inventory method.

Boys Republic, a community-supported agency which also is in suburban Detroit, provides care for boys who have had difficulty in making social adjustments. The boys are housed in two dormitories, attend school, work on the farm and in the kitchen, and are given time for recreation. From sixty-two boys, fasting blood and urine samples were obtained for one day in October. The diets of twelve children were weighed for a period of seven days, and a record was obtained of the choices of food by the sixty-two boys during a three-day period. Copies were obtained of the most recent physical examination of each boy.

Bay Cliff Health Camp, 60 mi. northwest of Marquette, Michigan, on the shore of Lake Superior, is a summer camp for underprivileged children. Many children at the camp are undernourished, and some have defects of speech or hearing, cardiac involvement, or residual effects of poliomyelitis. The camp is staffed by experienced teachers and supervisors, including some specially trained in the guidance of handicapped children. Camp life is built around a rehabilitation health program providing open-air living, ample rest, excellent food, and organized play and instruction in handicrafts. An infirmary is maintained at the camp, and each child is given a thorough medical examination upon admission. Blood and urine samples were obtained from children at Bay Cliff Health Camp during a period of seven consecutive weeks, during which samples were obtained from individuals two to six times, at intervals.

Holy Family Orphan's Home, Marquette, Michigan, provides a home for about one hundred children. Fasting blood and urine samples as well as quantitative dietary samples were obtained from children in care of the Holy Family orphanage during one week in November. Comparable food and blood samples were obtained the following April. The children at St. Joseph's Home of Baraga, Michigan, were studied at the same times, blood and urine collections being made in the fall and blood collections only in the spring. All of the children in the latter group are at least one quarter American Indian. Records of medical examination were available for all children in the two orphanages.

These studies were possible only through the gracious cooperation and assistance of the personnel of several organizations. The opportunity to evaluate the nutritional status of the children in care of the Methodist Children's Village was provided by Dr. Frances Knight, Director. The survey of food and feeding practices at the Children's Village was obtained by Mary Harrington, Dietitian for Harper Hospital, Detroit. The cooperation of Clyde Read, Superintendent, made possible the study at the Boys Republic. The dietary there was surveyed by Marcia Ward, Director, and Irma Halley, Institutional Consultant of the Visiting Housekeeper Association of Detroit. The studies of three groups in the Upper Peninsula of Michigan were stimulated by the interest of Elba Morse, R.N., Director, and Moses Cooperstock, M.D., Pediatrician, of the Northern Michigan Children's Clinic, Marquette,

TABLE 2

The numbers and distribution of biochemical determinations obtained on blood and urine of children

TESTS	METHODIST CHILDREN'S VILLAGE		BAY CLIFF HEALTH CAMP	ST. JOSEPH'S HOME		HOLY FAMILY ORPHAN'S HOME		BOYS REPUBLIC
	May	September	July, August	November	April	November	April	October
Blood								
Hemoglobin	153	85	268	47	47	96	99	61
Serum protein	151	80	266	47	47	96	100	59
Serum alkaline phosphatase	140	75	250	47	15	96	76	
Vitamin A	97	56	216	40	38	69	81	43
Carotene	123	58	224	41	39	71	83	42
Vitamin C	149	77	256	44	46	92	96	56
Urine-fasting								
Thiamine	143	79	201	41		93		57
Riboflavin	143	79	201	41		93		57
Total nitrogen	137	74	199	41		92		57
Creatinine	143	81	207	41		93		57
Creatine	143	81	206	41		93		57
Urine-load								
Thiamine	45	34	202	43		88		
Riboflavin	45	34	204	43		88		
Total nitrogen	44	33	201	44		88		
Creatinine	44	34	212	44		89		
Creatine	44	34	211	44		89		

TABLE 3

*Relationship of heights to height-age standards**

PERCENTAGE OF STANDARD	NUMBER IN METHODIST CHILDREN'S VILLAGE		NUMBER IN BAY CLIFF HEALTH CAMP		NUMBER IN ST. JOSEPH'S HOME		NUMBER IN HOLY FAMILY ORPHAN'S HOME		NUMBER IN BOYS REPUBLIC
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
116–120	1								
112–116	1								
108–112	3	1	2	1					6
104–108	4	4	4	2			3	1	14
100–104	9	8	10	8	1	4	9	6	22
96–100	8	8	22	14	9	12	26	12	11
92–96	5	4	12	13	10	8	26	12	6
88–92	2	1	5	2	2	1	11	6	2
84–88		2	2	2	2		1	2	
76–80							1		

* Standards: Meredith (1) and Boynton (2).

TABLE 4

*Relationship of weights to weight-age standards**

PERCENTAGE OF STANDARD	NUMBER IN METHODIST CHILDREN'S VILLAGE		NUMBER IN BAY CLIFF HEALTH CAMP		NUMBER IN ST. JOSEPH'S HOME		NUMBER IN HOLY FAMILY ORPHAN'S HOME		NUMBER IN BOYS REPUBLIC
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
160–170	1								
150–160	2								
140–150		1				1			1
130–140		1	1				1	1	5
120–130	5	4	2	3	1		1		10
110–120	4	6	4	4	3	4	4	2	12
100–110	4	5	6	8	7	10	13	12	10
90–100	10	5	15	9	6	9	24	13	14
80–90	4	3	16	13	6	1	30	8	7
70–80	3	3	9	6		1	3	2	2
60–70			3	1	1			1	
50–60			1				1		

* Standards: Meredith (1) and Boynton (2).

through which medical service is provided for these children. The surveys of these three groups were possible only with the cooperation of Miss Morse, Executive Vice-President of Bay Cliff Health Camp, the Reverend Emil Beyer, Superintendent Holy Family Orphan's Home, and the Reverend Casimir J. Adasiewicz, Superintendent, St. Joseph's Home of Baraga. Physical examinations of the children in these groups were obtained by Dr. Cooperstock.

In all, 390 children ranging in age from two and one half to eighteen years were studied. The age distribution of the boys and girls in each study group is given in Table 1 and the distribution of the determinations on blood and urine is shown in Table 2. The relationships of the children's heights and weights to standards are given in Tables 3 and 4, respectively.

COLLECTION AND PRESERVATION OF SAMPLES

The study of three of the five groups of children involved sending eight to ten staff members more than 600 miles from the Research Laboratory and arranging for housing and laboratory facilities for periods as long as six weeks. Through the cooperation of each of the organizations, sufficient laboratory space was obtained in convenient locations to provide "working

room" for the staff as well as storage for some 3000 lb. of apparatus and equipment. Only chemical determinations which, for accurate results, require execution soon after collection of the samples were done in the "field" laboratory. Samples for all other analyses were frozen at −30° F. in a unit installed in the field laboratory, then shipped to the Detroit laboratory in two cases specially designed and constructed for that purpose. Through the cooperation of the Railway Express Agency a schedule was maintained whereby a case containing 150 lb. of dry ice (which was not available at the study location) was shipped from Detroit to arrive by the time sufficient samples to fill it had been collected. Upon arrival, the frozen samples were transferred from the freezing unit, surrounded with the remaining dry ice, and the case returned to the Detroit laboratory. Each shipment was checked by telegraphic transmission of the number of the railway car in which it was placed. At the laboratory the samples were again transferred to frozen storage (Fig. 1). Throughout the survey all samples were held from time of freezing to time of analysis at a temperature of −30°F., or below.

FIG. 1. *Frozen samples being transferred after shipment to freezing unit to await analysis. Wrappers are removed from some of the 250 cc. centrifuge bottles to show diamond-etched markings on bottles, in addition to markings on wrapper. This view of the opened case, which was designed by A. J. Richards of this Laboratory, shows rabitted construction of top. The racks to which the bottles are transferred are so constructed that the bottles rest securely at an angle which permits maximum surface exposure of 75 cc. of liquid. For drying from the frozen state, after removing the stoppers, the racks of the bottles are placed in the Desivac (Fig. 3). The case has the following specifications: plywood construction with double walls 6 in. thick, packed with rock wool; capacity, 6 cu. ft.; top hinged at one edge and bolt-fastened at the other; weight when empty 225 lb.*

METHODS

Blood. Blood samples were obtained by the technique of Bessey and Lowry (4). Approximately 0.3 cc. of blood was sufficient for the analyses. All samples were taken in the morning before breakfast, thus eliminating any effect of recent food intake upon the level of the blood constituents, particularly vitamin C.[2]

Blood was collected from a finger puncture after cleansing the finger with alcohol. The first droplet and all traces of alcohol were wiped off. A 10-cu.-mm. sample of blood was taken into a constriction pipette and placed in an alkaline solution for hemoglobin determination as described by Bessey and Lowry (3). Then three to four tubes 1.5 to 2.0 mm. in outer diameter and 100 mm. long[3] were three quarters filled by capillarity. Each tube was tipped until the blood ran to the middle, care being taken to keep the other end of the capillary dry. A stick of plicene was softened in a flame (match or alcohol lamp) and applied to the *dry end* of the warmed capillary tube. For the tight seal required, it was necessary that the glass be warm enough for the plicene to "wet" it. The other end of the capillary tube was capped with a small amount of plicene, care being taken not to warm the tube, which might produce hemolysis.

The capillary tubes were rolled in sheets of paper 5 by 10 cm. and the paper folded over the tightly sealed end of the tube. After the blood samples stood for 15 min., they were centrifuged at 3000 r.p.m. with the tightly sealed end down. Many samples may be centrifuged together. When ready to make the determination, the top of the capillary above the serum was removed after scratching with a diamond point. A second scratch was made just above the red cells and the serum segment removed. Serum aliquots were removed directly from this segment with constriction pipettes appropriate to the determinations being made. Serum protein was determined immediately after collection and preparation of the samples. Then samples of serum and protein-free filtrate of serum were prepared and measured into microtubes, which were placed in a freezing cabinet at −30°F. pending shipment to the laboratory (Fig. 2) for determinations of vitamin C, vitamin A, carotene, and serum alkaline phosphatase.

Urine. Timed, fasting urine samples were collected from the subjects for the interval between arising and breakfast. The interval differed from one group to another, varying from 1 to 1½ hr. Upon arising the subjects emptied their bladders, then each was given 75 to 125 cc. of water to insure an adequate volume of urine for the fasting sample to be collected just before breakfast. Collection of timed, short-interval samples of urine is difficult, even from adults. The problems were more numerous with children.

[2] The term "vitamin C" has been applied to results obtained in this laboratory by methods which determine greater vitamin C activity than would be found by using methods which determine only ascorbic acid.

[3] Melting point capillary tubes; e.g., #34500 of Kimble Glass Co., Vineland, N. J.

FIG. 2. *Packing frozen samples of serum for shipment. Micro-test tubes are packed in mailing tubes, the tops filled with cotton, and the containers sealed with adhesive tape, before placing in the shipping case (Fig. 1).*

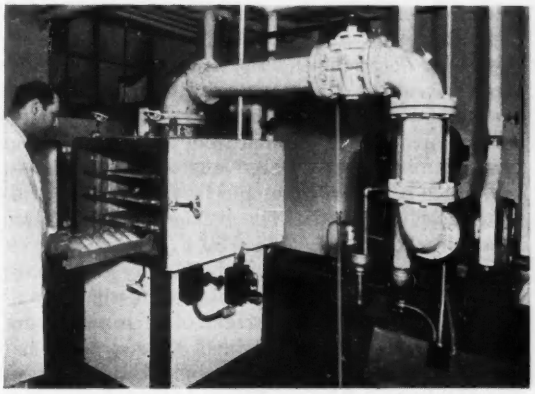

FIG. 3. *The "Desivac" equipment used in this study for desiccating samples of urine and food from the frozen state under vacuum.*

Although the fasting samples were obtained primarily for thiamine and riboflavin determinations, creatinine and total nitrogen analyses of the same samples served as an important control method by which samples grossly in error might be eliminated.

Thiamine and riboflavin also were determined in urine collected following loading tests which consisted of oral administration of 1 mg. of thiamine and 1 mg. of riboflavin with a test breakfast poor in these vitamins. The breakfast consisted of boiled white rice, sugar, and butter, with limited amounts of white bread (unfortified) and toast. In each instance, the amount of bread eaten was noted so that the significance of its B-vitamin content in supplementing the test dose might be considered. The test supplements of thiamine and riboflavin were dissolved in a small volume of dilute acetic acid and mixed with a beverage. At the Children's Village and Bay Cliff the vitamins were given with 100 cc. of canned tangerine juice. For expediency at the Holy Family and St. Joseph's Orphanages, "soda pop" proved to be an extremely popular vehicle for the vitamins and was ideal for the purpose, owing to the lack of any vitamin content in the commercial product. Urine was collected for the 4-hr. period following ingestion of the test breakfast. Supervision of the children by trained workers insured a minimum of errors in collecting, but in working with children it is inevitable that accidents occur with some samples. Again, determination of creatinine and total nitrogen in the samples, by methods to be described, served as a control measure.

Both fasting and loading-test samples of urine were held for analysis in the laboratory. The volume of each sample was measured and enough glacial acetic acid added to bring the concentration of acid to 2 per cent, producing a *p*H of 2.5 to 3.5—the range of optimum stability for creatine and creatinine. Aliquots of the urine sufficient for the analyses intended were placed in 250 cc. thick Pyrex glass centrifuge bottles (volume in each bottle was limited to 140 cc.), which were then stoppered, placed at an angle in the freezing cabinet so they would be "slant frozen," and held in the frozen state pending desiccation and analysis (Fig. 3).

Foods. Quantitative food collections were made at the Holy Family Orphanage for one week in the fall and for a similar period the following spring. Inasmuch as quantitative collections for all of the children were not feasible, four cooperative children, a boy and a girl eight years old and a boy and a girl twelve years old, were selected to represent the group. The four were fed at a separate table in the dining room and received unrestricted amounts of the same foods served to all of the children. Throughout the week the food consumption of each child, at each meal, was accurately weighed. For two days all foods were weighed but collections were not retained which permitted the four children to become accustomed to the routine and to the novelty of the experimental situation, thereby insuring that subsequent food collections would be more nearly representative of their usual diet.

In the fall study, at each meal the weights of the menu components consumed by each child were determined. Following the meal, duplicate portions of the foods consumed by each child were combined in a large, brown, glass bottle with 80 cc. of 5 per cent acetic acid and placed in the refrigerator. The same procedure was followed for the three meals of one day. The food composite representing the food intake of the child for one day was mixed and passed through a food grinder, followed by an amount of water sufficient to remove all food. After being weighed and thoroughly stirred, about 550 gm. of the mixture was homogenized in a Waring Blendor. Portions of the homogenized material weighing 130 gm. were transferred to four 250-cc. heavy Pyrex glass centrifuge bottles. The bottles were stoppered,

"slant frozen," and stored at −30°F. until analysis. Separate collections of the food composites were obtained for determinations of ascorbic and dehydroascorbic acid. For these, one tenth of the amount of each menu component consumed, excluding foods such as bread, rice, and macaroni which do not contain vitamin C, was placed unground in a 250-cc. centrifuge bottle with an equal weight of 6 per cent metaphosphoric acid. The bottles were stoppered, "slant frozen," and held at −30°F. pending analysis.

In the spring study at Holy Family Orphanage, quantitative food collection was somewhat simplified. At each meal the weight of each menu component consumed was recorded. Exactly one half the quantities eaten by a subject were weighed directly into a Waring Blendor,[4] and a measured amount of water was added sufficient to facilitate homogenizing and by reducing the viscosity to prevent undue heating during the blending process. Seven tenths of the blended material, by weight, was placed in a brown glass bottle with 30 cc. of 5 per cent acetic acid and refrigerated. Two tenths of the material, by weight, was placed in another brown glass bottle with an equal weight of 6 per cent metaphosphoric acid and placed under refrigeration. Acetic-acid-treated portions collected for the three meals of the same day were thoroughly mixed and 140 gm. placed in each of four 250-cc. centrifuge bottles. These were stoppered, "slant frozen," and held at −30°F. for analysis. The metaphosphoric-acid-treated portions destined for vitamin C analysis were combined for the three meals, mixed, and 140 gm. frozen in a centrifuge bottle for analysis later.

Following the nutritional status studies at the Children's Village, the diet of the groups of children was assessed by periodic inventories of all food supplies on hand and records of food purchases during intervals of two months. From these data the average daily intakes of specific nutriments were calculated for the individuals.

At Boys Republic, diet records were obtained for three consecutive days immediately following collection of the blood and urine samples. For twelve boys each food or prepared food combination was served in an individual, smooth-finished paper container which was then weighed. Soups, stews, and beverages were placed in containers such as are commonly used for ice cream (3.5 in. in diameter, 2 in. deep). Jelly, jam, salad dressing, sugar, and so on, were served in small "nut cups" (1½ in. in diameter, 1 in. deep). Solid foods were served on paper plates 6 in. in diameter. If food in any of the containers was uneaten, the receptacles were reweighed after the meal. Other values were merely corrected for the weights of the containers in which they were served. For food combinations the nutritive values were determined by using percentage composition figures indicated by the recipes used in the kitchen and by the containers in which prepared foods were purchased. Each day all of the boys recorded on mimeographed forms the number of servings of each food which they selected at breakfast, dinner, and supper, noting any portion of a serving which they did not eat and the reason.

Subsequent papers in this JOURNAL will present the detailed methods of analysis and the results of the studies of the diets, the vitamin C, hemoglobin, total serum protein, vitamin A, carotene, and serum alkaline phosphatase in the blood, and the thiamine and riboflavin in the urine of the children in the five groups. Other publications will contain reports on the creatine, creatinine, and total nitrogen contents of the urine and an evaluation of the medical examinations.

[4] Special precautions were taken to prevent contact of the foods with any heavy metals of biological importance. The Waring Blendor parts, the only metal materials with which food came in contact after collection, were rhodium-platinum plated. A thin layer of this hard, durable alloy is practically resistant to wear under the conditions of the study.

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American Food Habits

Preliminary results of a two-year study of the nation's food habits by the Food and Container Institute of the Armed Forces were recently reported by Colonel Charles S. Lawrence, commanding officer. The survey has reached every geographical and economic level in this country.

Of more than 800 standard dishes selected from cook books and restaurant menus, only 200 proved to be known and used in all parts of the country. The most popular food, as found by this survey, is the hamburger, which is most widely known and used and best liked. The findings of this survey confirm experiences of the Army during the war when seemingly common American dishes proved to be totally unknown in some sections of the country.

The Army plans to use the data obtained in this survey as a guide in its menu planning.—*Food Field Reporter, November 24, 1947.*

The Health and Welfare of the World's Children[1]

MARJORIE M. HESELTINE

Director, Nutrition Unit, U. S. Children's Bureau

THE WAR and what has happened since the fighting ceased have taken their toll in maternal and child nutrition in many parts of the world.

Food shortages are not solely responsible for the deterioration in the physical condition of children in the countries most directly affected by the war. Nevertheless, most medical authorities name hunger first among the causes of the deplorable conditions which will be enumerated here. Newborn babies weigh less on the average than when food was more plentiful. More babies are born prematurely. The proportion of infants who fail to survive the first year is several times greater than before the war. Mortality continues high after infancy, contrary to the normal trend. Severe forms of rickets, which were becoming rare among infants and young children, have been noted much more commonly. Not only is active tuberculosis more prevalent, but it has appeared at unwontedly early ages, even in preschool children. Children who show no signs of disease as yet tend to be well below average weight and height for their years, as measured by prewar standards. Nutritional anemias are common. Amenorrhea is found frequently among adolescent girls. Except for rickets, however, there is little evidence of any deficiency diseases in areas where these were not endemic before the war. Some pediatricians offer as an explanation that the retardation in growth resulting from inadequate intakes of calories and protein has held down the requirements for minerals and vitamins below those of a child developing at a normal rate.

The picture is dark. It would have been much blacker had it not been for the valiant efforts that practically all countries have made in behalf of their children. As long as there was enough of the most important foods for healthy growth for even a part of the population, first claim on them was given to growing children and to pregnant and lactating women. Foods too scarce to ration were distributed through schools meals and other schemes for group feeding which were undertaken by both governments and voluntary relief organizations. When UNRRA moved into the countries that had been liberated but were still in need of outside aid for relief and rehabilitation, supplementary feeding of nutritionally vulnerable groups was a major activity.

These efforts in behalf of children has shown results. Health authorities of Great Britain are agreed that the nation's children were in better health on the average at the close of the war than at the beginning. The decrease in the incidence of prematurity that occurred was attributable primarily to better nutrition, according to Sir Allen Daley, Medical Officer of the London County Council. This improvement in nutrition occurred in the face of drastic limitations in the national food supply and demonstrates what can be done when nutritional knowledge is utilized to the full in framing national policy. That Great Britain intends to profit by the wartime experience is indicated by the provision for extension of school meals in the national educational legislation of 1944. Do you remember Lord Horder's plea in the House of Lords during the war for the extension of school meals? He said, "Our children deserve that we should make this effort; they, at least, are not responsible for the grim state of the world, which puts their health and happiness in jeopardy, and let us remember that our children are all that we have for tomorrow."

UNRRA operated only in those war-devastated countries whose needs were greatest and whose resources were least. Even in the face of tremendous obstacles, UNRRA did much to assist permanent agencies in the respective countries to protect the health of children. In more than one instance threatened famine was averted through UNRRA feeding programs. Unfortunately UNRRA did not have unlimited resources and could not give even a supplementary meal to all hungry children. Moreover, UNRRA ceased to exist, both in Europe and in China, last summer while most of the countries still needed aid. Before UNRRA was dissolved, its

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 15, 1947.

Council took steps to continue intergovernmental aid to children by recommending to the United Nations that an International Children's Emergency Fund be established. This new agency came into being in December, 1946, through unanimous action of the General Assembly. Its governing body is an Executive Board composed of representatives of twenty-six nations who serve for three years, under the chairmanship of Dr. Ludwik Rajchman of Poland.

How much the Fund will be able to do will depend on the food and financial resources at its disposal from governmental appropriations and from voluntary contributions. Resources already at hand have made possible the shipment of some foods to be used for a supplementary meal for mothers and children in the twelve European countries in which the Fund will operate. Out of the 20 million persons who are estimated to be in need of supplementary food, it is hoped that $3\frac{3}{4}$ million can be reached within the next few months. Donations from governments will be largely in the form of food that originates in the donor country and that fits into the plan adopted by the Executive Board. Norway, for example, has already contributed cod-liver oil. Canada counts on being able to furnish some dried fish.

It is obvious that only those foods have a place in the procurement plans of ICEF that give maximum nutritive value for their cost and that provide those nutrients most likely to be lacking in national rations. For a formulation of principles of child nutrition that would serve as a guide for its feeding program, the Fund turned to a Joint Advisory Committee of the United Nations Food and Agriculture Organization and World Health Organization. This committee met in Washington last July immediately after the close of the International Congress of Pediatrics, which was the occasion for the presence in this country of most of the non-American members. The committee chose as its chairman, Dr. Evert Gorter, Professor of Pediatrics at the University of Leyden, Holland. As an occupant of a German prison camp during the war, he had been well acquainted with starvation.

The tangible result of the conference was a mimeographed document of some twelve pages,[2] most of which was given over to a statement of nutritive needs of children of various ages and of pregnant and nursing women together with information on the foods and dietary supplements that go farthest toward meeting these needs at minimum cost. Following this very compact reference material was included a set of recommendations for supplementary feeding programs in general, but with particular application to the ICEF program. As an indication of the down-to-earth quality of the report, I will mention the section on the "Cost and Nutritive Value of Different Supplements." The kernel of this section is a table which compares the number of children for whom $100 would provide equivalent quantities of protein and calcium if spent for various forms of milk. If dry whole milk were used, eleven children could receive 14 gm. of protein and 0.5 gm. of calcium daily for six months. If dried skim milk plus fat were used, the number of children who could be fed would range from fifteen, if the fat were butter, to twenty if fortified margarine were the fat, and thirty-one if the fat were lard. A $100 expenditure on other milk products would take care of fewer children than would dried whole milk. These data support the recommendation of the committee that dried skim milk be provided for children past infancy and for pregnant and nursing women, "because skim milk is a cheaper source of certain important nutrients than other forms of processe milk."

Although the committee stuck to its technical last, it could not help but be mindful of the great importance of the movement to which it was making a contribution, and it drafted a concluding statement of two paragraphs, the last of which reads:

"There can be no more important objective than the salvaging of damaged child life and the building of strong and healthy men and women who can play a full part in the reconstruction of a devastated world. The world cannot hope for a better future unless it looks after its children. Much can be achieved by the careful and well-organized expenditure of money and effort on the feeding and care of necessitous mothers and children. International action to promote the well-being of mothers and children will, moreover, foster a spirit of friendship and cooperation between nations."

I cannot speak for the whole Advisory Committee on Child Nutrition, but I can express my own hope that the material which was drafted at this meeting will be made available wherever there are hungry children.

The operations of the ICEF are far-flung, it is true, but they do not begin to reach all children in need, even in Europe. There are 600,000 displaced persons still being cared for in assembly centers; among them are 7000 children without parents in addition to those in family groups. Providing them with food is now the responsibility of the newly-created International Refugee Organization. There are also the children of Germany itself. The physicians and nutritionists who have visited the American and British Zones since the close of the war report that many of these children are in a deplorable condition. Following the recommendations of Herbert Hoover on his visit last year, the Health, Welfare, and Education Branch of the American Military Government has instituted school meals as a means of pro-

[2] Titled "Report on Child Nutrition," a limited number of single copies of this report may be obtained from the International Children's Emergency Fund, 405 East 42nd Street, New York City.

tecting child health from the full consequences of the inadequate family ration. All of these feeding programs have been based on the very best knowledge of nutritive needs of children and of food values and food economics that is available. Otherwise the food will give out and the children remain underfed.

Europe has no monopoly on hungry children. When UNRRA went out of existence in China last summer, the Central government and voluntary agencies were once more thrown back on their own resources. The importance attached to nutrition as a factor in the health of Chinese children is attested by the action taken by that government in taking over some of the personnel brought in by UNRRA. If any country might be expected to take the stand that supplying food was all important and education related to the use of that food something to be put off until better times, that country is China. I have been impressed, too, that the Chinese physicians, social workers, and nutritionists who have come to see us in Washington are insistent that educational activity must go hand in hand with relief efforts.

What of our own hemisphere? Since the Americas were not ravaged by war, the children of our twenty-one republics and the possessions should be comparatively well off. That is not the impression gained from the sessions of the Inter-American Congress of Pediatrics in Washington last summer and from the conversations with the Latin-American physicians who visited the Children's Bureau. The malnutrition and undernutrition that delegates reported to the Eighth Pan-American Child Congress in 1942 and that those of us who have visited these countries have observed are still prevalent. I well remember a tour through the wards of a children's hospital in a South American republic. As the chief of staff would stop at the crib of child after child who might have been the model for the illustrations in the pediatric textbooks, he would say one word: "Hambre" (hunger). This same physician came to Washington last summer. He and his colleagues reported that economic inflation was reducing the always-inadequate diets of the poor families and that the hospitals were seeing an increasing number of children suffering from undernutrition that approaches starvation.

We of the United States do not have to apply for a passport to be confronted with undernourished children, as some of the large scale appraisals of the nutritional status of population groups are showing. Conditions in Puerto Rico were presented vividly to the Food and Nutrition Board about two years ago by Dr. Pablo Morales Otero, Dean of the School of Tropical Medicine on that island. Dr. Elmer Sevringhaus made observations during a more recent trip that reaffirm Dr. Morales' presentation. Both point out the opportunities offered in Puerto Rico to demonstrate what can be done by a concerted attack on the causes of the unsatisfactory nutritional state of a substantial part of the population.

For the months just ahead the task seems to be to keep world conditions affecting food supplies and nutrition from getting worse. That is a limited objective but one that is all important. Each of us has a right to his own opinion as to whether this country should share its food and its purchasing power through governmental action, voluntary cooperation, or a combination of both. But it is inconceivable that we, as specialists in some aspect of dietetics and nutrition, should not realize that we have a job cut out for us. Administrative dietitians can make truly dramatic contributions. When they reduce waste, they can count the gain in pounds. Nutritionists rack their brains to make it seem worthwhile to homemakers to save such individually insignificant amounts as a slice of bread or a teaspoonful of animal fat. It may be part of their job, for example, to convince housewives that fish is such a nutritious and palatable food that they should serve it twice a week instead of once. I will admit that a dietitian might see the respective opportunities and difficulties of the administrators and nutritionists in a different light. What I hope both will not challenge is that there is something for each member of the American Dietetic Association to do, regardless of her particular niche in the field of dietetics.

The world food situation may eventually reach what was considered normal before the war. Then our efforts will be directed toward bettering conditions that were tolerable only because we were ignorant of them or lacked the knowledge and organization to correct them. In nutrition and health, that is the task which the Food and Agriculture Organization and the World Health Organization have set for themselves.

In our small way, that is something for the American Dietetic Association to tackle also. As a matter of fact, this Association has already taken the first step toward what seems to be one of the most fitting forms of service it can possibly render. I refer to the recently-announced appointment of a Foreign Scholarship Committee. A goodly sprinkling of American dietitians have had some opportunity during these last six years to see something of the conditions under which the dietitian of the future in other countries will work. Those observations should help in planning meaningful educational experiences for the holders of the scholarships and for others who may seek only financial guidance, but not financial aid. If the American Dietetic Association can help to establish the profession of dietetics in countries that are desperately in need of the skills its members possess, it will be doing its share in the world movement for better nutrition and health.

Feeding Vulnerable Groups in China[1]

MILDRED BONNELL

Assistant Director of Dining Halls, University of Washington, Seattle; Formerly, Mass Feeding Specialist, National Office, China Mission, United Nations Relief and Rehabilitation Administration

MEASURED by western standards, the problem of nutrition in China is so vast that its satisfactory solution is beyond our immediate comprehension. It is foolish to question nutritional adequacy when many people are faced with the problem of obtaining food of any kind. To them, food means the difference between life and death.

The most obvious and ever increasing problem is that of feeding the poor. The standard of living in China has always been tragically low. Ravages of war and postwar inflation have resulted in even lower standards and affect many more. As one magistrate of a village expressed it, "We have the big poor and the little poor, but everyone is poor." Thus the majority of all Chinese people eat primarily a cereal diet with vegetables if they are plentiful. Meat is a rarity obtained possibly once a year at a wedding feast or during the New Year's festival. Winter brings many destitute into the cities to beg, and every morning the police collect the bodies of those who have died on the streets during the night as a result of hunger and exhaustion.

The author in a camp for displaced Chinese persons. Note the concrete sinks and open drains.

Almost every year famine exists in some province where not enough food has been produced. During and following the war these famines were many, due to farmers having lost their work animals, seeds, and tools, as well as having the harvest taken by the enemy. People live on such a narrow margin of safety that natural disasters such as flood, drought, or insects often result in crop failure and famine.

There were groups, however, who before the war fared better than they have since.

War years were particularly difficult ones for children. Many were lost from their parents and became beggars. Others were forced to suffer privations. There was a shortage of mother's milk. Infants who were fed cereal gruel as a substitute either died or developed into weaklings. Always in China the dangerous years for children were one to five, after weaning when mother's milk was no longer available and other foods necessary for growth and health were inadequate. The average farmer cannot afford to raise milk animals. Consequently, milk, the staple for children of the western world, is practically unknown to Chinese children. Only the well-to-do can afford to buy expensive fresh milk from city dairies or powdered and condensed milk in cans. This is probably the reason for some mothers nursing their babies until they are two or three years old.

Studies of school children revealed a caloric intake 30 per cent below normal, as well as a very low protein and calcium intake. Average body weight was 2 to 3 lb. below prewar average. Symptoms of bone deformities were common.

During the war many children were cared for in orphanages. These institutions are now government operated. Inflation prices and inadequate appropriations have caused feeding standards in these institutions to drop lower and lower so that for several years the children have not received even half of the mini-

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 16, 1947.

mum standard for growth and health. Many institutional appropriations do not cover the cost of fuel required to cook food or to boil drinking water, which is a problem equal to that of food cost.

Recently an orphanage of 350 children in the capital city, Nanking, was the object of a special survey. Physical examinations showed 80 per cent to be anemic, 50 per cent with marked evidence of ascorbic acid and B-vitamin deficiencies. About 80 per cent suffered from dysentery; 57 per cent had scabies; 48 per cent ringworm of the scalp; 71 per cent conjunctivitis; 4 per cent active tuberculosis; and 11 per cent malaria. Certainly here was a need for a health program which included nourishing food. The children's daily diet consisted of rice and a bit of steamed vegetable. Their drinking water was not boiled.

During the war the National Institute of Health made some nutritional surveys on various groups in unoccupied China. Groups tested included students, factory workers, city families, farmers, and soldiers. It was found that students were furthest below normal. They were generally emaciated; about 12 per cent had tuberculosis; 80 per cent were anemic; 70 per cent had ascorbic acid deficiency; and many showed poor condition of the gums but no scurvy. Vitamin A deficiency was prevalent as indicated by night blindness and hyperkeratosis of the skin. Protein intake was only 50 per cent adequate.

Soldiers had an average caloric intake of 2400. Protein intake was low, and none of it was animal protein. They were more than 50 per cent deficient in riboflavin. Rice was the chief food with a small amount of vegetable and soy beans.

The nutritional condition of laborers was better than prewar due to their increased income. Their diet was higher in protein, deficient in vitamins.

Professional families, such as teachers or government workers, suffered because salaries did not rise in relation to living costs.

There were large numbers of displaced persons of both Chinese and other nationalities who had become stranded in China during the war. Many had become destitute from lack of a source of income. These groups were a real problem for the Foreign Relations Department of the Chinese government.

Thus, in planning how UNRRA foods could best be used in China, it was necessary to study carefully these problems in order to determine how the food should be distributed. The demands of the groups in need were so large that no relief program could satisfy them all. Thus to avoid spreading too thin, it was necessary to decide which classification among these people most deserved aid. This was decided by the Chinese themselves. The operating agency was the China National Relief and Rehabilitation Administration, CNRRA, operated in every province of occupied China. Feeding programs varied in each region in relation to the most acute problems.

Generally the feeding programs were designed to aid the following groups:

(a) The destitute.
(b) Children, pregnant women, and nursing mothers.
(c) Low income groups.
(d) Public welfare institutions.
(e) Students of higher grades.
(f) Externally displaced persons.

Not always was food distributed as cooked food. In fact, it was preferred that families be given provisions to use at home where it was possible. In congested areas, however, one or more forms of mass feeding were used as the best way to insure a fair distribution to large groups.

A child victim of the famine in Hunan Province in the summer of 1946.

Another child gleaning grain from the street during the 1946 famine in Hunan Province.

Emergency feeding programs designed to relieve acute hunger of destitute groups had been conducted in years past by religious agencies, charity or trade guilds, municipal governments, or by foreign service groups. In many instances the diet offered was so limited that it probably served to prolong death rather than insure life. An instance in point was the flour and water gruel served by the municipalities to famine sufferers in 1946. It was not until CNRRA began its program of feeding nutritious foods that deaths were reduced. The Salvation Army in China has also advocated feeding a diet of mixed cereals, vegetables, beans, and oil to refugee groups.

The CNRRA-UNRRA program either conducted or assisted other agencies to conduct feeding programs for the destitute in famine areas, in cities, and in camps. It was discovered that trouble among refugees resulted if such programs were conducted longer than the period of acute suffering. Recipients recognized it as an easy source of food and accepted it as something due to them. Any attempt to cease such long-term free feeding activities resulted in mass riot against the donors.

During the famine, ill people were picked up from the streets and taken to camps where they were given medical care and fed a nutritious diet. When the famine period was over, the people were returned to their homes and the camps were abolished.

During winter months in Shanghai, CNRRA distributed nutritious "congee" to numerous stations throughout the city by means of mobile kitchens which cooked and delivered simultaneously. The congee, consisting of rice, meat, vegetables, and oil, was delivered in bulk at the stations to the various agencies which were responsible for selecting recipients and for conducting individual distribution.

In more than half of the regions of China, cheap meal restaurants for low income groups were organized. Kwangtung province of South China operated sixteen, of which eight were in Canton, where about 33,000 meals a day were served. UNRRA free foods, such as rice, beans, meat, and fat, were used and were supplemented by fresh vegetables and other foods needed in an attempt to provide an adequate diet. The cost of the meal to the customer covered only the cost of supplementary food, fuel, and operating expenses. In Canton a small "plate meal" consisting of 4 oz. rice, 2 oz. vegetable, and $\frac{1}{2}$ oz. meat was offered for as low as 1 cent American money. The customer could buy as many plates as he desired. The average sale was two or three.

In contemplating future relief feeding programs for China certain facts should be kept in mind.

(a) Little relief comes from sending food alone to China unless that contribution has at the same time guaranteed adequate funds and personnel.

(b) If lasting nutritional aid comes to China, it must be through the efforts of the Chinese themselves. They need first to develop a community social consciousness. This is difficult in a country where there is no concept of "sharing" with the less fortunate. Traditionally a Chinese feels only responsible for himself and his family.

Along with her programs for rehabilitation of agricultural lands, China needs programs for training nutritionists and professional feeding administrators.

It is inevitable that we, a strong nation, must share our resources with the weaker one. We can best help by strengthening China's internal resources. As a professional group we can first try to understand Chinese problems of nutrition. We can support scholarship funds and funds to aid in developing trained personnel in China. We can loan to China western personnel to give technical assistance. Perhaps we can hope some day to have international cooperation among dietitians.

Another hunger victim of the famine of 1946. Observe the sores on the legs of this girl.

An old Chinese man of Kaifeng carrying his ration of free flour.

Feeding the German People[1]

JANE C. EBBS

Nutrition Adviser, Office of the Quartermaster General, Department of the Army, Washington

IT IS at first impossible to comprehend that a country of hungry and near hungry people would refuse a new type of food. Such was in reality the situation which existed in Germany in May of last year. The lack of availability of wheat had made necessary a heavy corn export in order to maintain the desperately needed bread grain quota for our occupied areas in Europe. Official War Department communications from Germany indicated a serious situation wherein German housewives were confounded and confused by a new cereal grain of which they knew nothing and which came from a product long known but always considered an animal fodder. The baker was faced with a new cereal grain which did not act in a manner like rye, barley, or wheat but which he was forced to use in bread formulas in amounts varying from 20 to 80 per cent of the bread grain ingredient. And last but not least, the Third Reich had published an order which specifically stated that any bread containing more than 7 per cent corn meal or flour would be considered as adulterated.

The world grain situation in the spring of last year had made it necessary for the United States to procure and ship corn to make up for the shortage of wheat. Furthermore, it is anticipated that this situation will occur again and again.

With this knowledge, Tracy S. Voorhees, War Department Food Administrator for Occupied Areas and Special Assistant to the Secretary of War—who, it may be added was a member of both the Hoover Missions—elected to send a mission to Germany to consider all aspects of the utilization of corn.

The members of this mission included Esther Batchelder, Head of the Food and Nutrition Division, Bureau of Human Nutrition and Home Economics, Department of Agriculture; Helen G. Oldham, Associate Professor of Home Economics, University of Chicago; Vera States, Administrative Assistant; and the author.

Before departure, a wealth of material on the subject was collected. Dr. Oldham contacted many of the home economists in the Chicago area for information on the cooking of corn products. She was already well grounded in the basic nutritional requirements for all ages and the nutritional effects of a high-corn diet. Dr. Batchelder collected the information on corn cookery previously developed by the Bureau of Human Nutrition and Home Economics and, in addition, qualified people of her division experimented with new corn dishes. All of the recipe collecting was done bearing in mind constantly the limited quantity and variety of foods available in Germany. Miss Batchelder went armed, not only with the published information of the Department of Agriculture on the use of corn as a food but also with a brief case full of Bureau of Human Nutrition publications.

Helen Hamilton, Director of Home Economics for Corn Products Refining Company, was contacted and she also provided corn recipes requiring a minimum of fuel and ingredients. She furnished us, too, with the name of a German woman, Frau Margot Schubert, who had contacted Miss Hamilton for information on corn cookery and had sent a little recipe book she had written describing American foods found in the CARE packages.

Upon arrival in Germany, we found the food situation very grim. I personally observed that the plight of the Germans had considerably worsened in the six months between my departure from there early in December and our return late in May. I found particularly disturbing the general German attitude that the United States was slowly withdrawing from Germany as was evidenced to them in the cutting down of Military Government personnel. To them this seemed to mean the slow but definite withdrawal of the United States and the subsequent and inevitable annexation of Germany by Russia. Not only did my German acquaintances of previous visits believe this, but the mission later found that this opinion was held generally and greatly deplored by the faculties and students of the universities.

Having discovered that Frau Schubert was a newspaper woman and presently known throughout Germany as a successful and respected author of the foremost book on gardening, the mission lost no time in proceeding to Heidelberg. That Frau Schubert

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 16, 1947.

lived in Heidelberg was a happy coincidence since we had previously planned to work closely with the University. Knowing full well the profound respect with which the average German listens to the words of the Heidelberg scientists, we wished to enlist the aid of these men and through them to establish an acceptance of corn as a food.

Frau Schubert proved to be a charming, brilliant, and capable woman of boundless enthusiasm. We were fortunate also in finding that the Director of the Physiology Institute of the Medical School of the University of Heidelberg, wherein the responsibility for nutrition rests, was Professor Strughold, who had spent a few years in this country studying at both the University of Chicago and Western Reserve University. Dr. Strughold knew well the Americans' love for corn and immediately promised us his full support in any program we might undertake. He furthermore invited the mission to establish headquarters in his Institute. Not only that, he promptly gave us the former office of Professor Helmholz, the great physiologist. There we worked surrounded by the original apparatus and instruments of the great professor.

At this point, however, we encountered a new and unforeseen problem. All over the countryside we had observed the rotting of small fruit. We saw thousands upon thousands of small gardens bursting with vegetables. And tragedy upon tragedy, we knew that closures for only two 1-kg. containers would be available per person during the year for home canning. Here was a shocking situation for there was no way to preserve small garden surplus food against the winter's short rations.

Home dehydration was the obvious answer. A decision to prepare a booklet on food preservation by home dehydration was made quickly. The mission concerned itself with the adaptation of the publications of Bureau of Human Nutrition on home drying to the German situation. In this we were aided by Frau Schubert and Professor Strughold. Difficulties were encountered which at times seemed almost insurmountable. Not only was the German kitchen equipment different from that in the United States, but there were also the problems of fuel rationing and the complete lack of such items as lumber, nails, or wire screening. However, this discouraged neither our German colleagues nor our mission. What if building materials were lacking for making the American-type racks for dehydration? Racks were built by using sticks sold in stores for tying up vegetables. These were laced together with ersatz string and covered with cloth, and the racks were separated one from the other by empty thread spools.

Then came the next problem, that of duplicating the heating directions. Where stoves and ovens were available, the problem was not difficult; where stoves or gas ovens are not available, the German householder is allowed an electric hot plate as the sole source of cooking for the family indoors. This type of heating was our great problem. To solve it, racks were stacked over the heat and thermometers placed on each rack. For ninety-six consecutive hours Frau Schubert, Professor Strughold, and two university technicians worked adjusting and readjusting distances until the temperatures exactly duplicated those recommended by the Bureau of Human Nutrition and Home Economics in their booklets.

Then came the acid test—the blanching and actual dehydration of carrots, greens, kohlrabi roots and leaves, onions, and cabbage. The resulting products had picture-book beauty and our colleagues were elated.

A booklet called *Bessere Wintervorrate* or "Better Winter Stocks" giving careful directions for the entire procedure was prepared. Professor Strughold wrote of the nutritive value of these dried vegetables and of the new American method of drying; Herr Reichsminister Dietrich of the German Food and Economic Council contributed the introduction; and Frau Schubert wrote the text. The booklet was published by a German publisher, and overnight the entire printing of 375,000 copies was exhausted. Requests for additional copies were so great—two to three thousand a day—that they were delivered to the publisher in great baskets.

By the end of August it was estimated that 120,000 tons of vegetables had been dehydrated in German homes for the winter. In addition to saving food which would have spoiled otherwise, our government was saved money since we ship food to make up for the deficit in indigenous production. And, the more food preserved the less the deficit.

The close scientific alliance between the original purpose of our mission and dehydration for winter stocks is startling; if high-corn consumption is accompanied by the consumption of green vegetables, is not the danger of pellagra minimized?

The corn program we outlined as three projects. First came a consideration of the possible utilization of large quantities of the grain as lye hominy. Once more the collection of bulletins of the Department of Agriculture helped us. Since the British Zone of Occupation had received the greatest impact of the high-corn shipments, the British were extremely eager for practical methods of corn utilization. Like the Germans, the British people are unfamiliar with the use of corn for human consumption. And so, in collaboration with the British bizonal officials, our group planned a pilot study on the production of lye hominy from imported corn. This project was certainly one for the chemists, for it was necessary to resort to chemical symbols for the procurement of the necessary supplies. For example, what we industrially call potash is a far cry from what the German calls potash. Similarly, German standard solutions are not solutions which are standard to us.

The basic plans were made and the stage readied for making lye hominy for retail sale. But our project failed, for the variety of corn then imported did not lend itself to the making of lye hominy. The stage is set, however, and the production of this product will be possible in the future in the event of the importation of suitable corn.

It is perhaps fitting at this time to explain exactly why the corn situation in the British Zone concerned our mission. Germany was, at the time of surrender, divided in four parts. Each part was ruled independently by the occupying power. There was no economic unity, and each zone was foreign to the others. In January of last year the British and American Zones merged for the better administration of economic activities. We now have a bizonal operation jointly administered by the United States and United Kingdom.

Our second plan was to make contact with the allied officials in each country or "Land" of the fused zones. Through these officials we reached the obermeisters for milling and baking. This project took us to all parts of the two zones. In this travel we were able to visit places for purposes not directly allied to our mission, but directly concerned with the feeding of Germany.

One such visit was to the laboratory of Professor F. H. Rein, head of the Physiology Department of the Medical School of the University of Goëttengen. Dr. Rein, a well-known German medical physiologist, had been disturbing both the American and British authorities by his semi-popular scientific articles in which he stated that fat was an actual dietary essential and that in a ration as low in protein and calories and fat as the present German ration, fat is a vital must. This theory was contrary to the opinions held by any of the occupying powers based upon advice from their respective countries, and the bizonal officials had asked our mission to discuss this with Professor Rein. We did, and left Dr. Rein convinced of the validity of his opinion. Dr. Rein quoted concentration camp instances where a ration of approximately 2000 calories per day was fed as soup made from pulses, vegetables, bread, and potatoes. On this ration the inmates died. Many such observations had been made also by a Swiss physiologist at Camp Leibbrandt. Dr. Rein was convinced from these observations and his own that on a low-protein, low-caloric diet, the body cannot turn carbohydrates into fat. It is interesting to note that Pearl Swanson of Iowa State College is observing a similar pattern in her animal studies.

Let us examine the official German ration for the normal consumer to see better what Dr. Rein meant. The full day's ration is officially 1550 calories for the normal consumer. Is it any wonder that the people in the streets are weak and lack stamina? Is it any wonder that the college student, graduate student, and medical student consistently fall asleep in their classes? Worst of all, although it is the official ration on paper, this level of 1550 calories had not been reached for many weeks.

In our tour of the "Land" offices, we discussed the American methods of milling corn and the ways of incorporating corn meal into commercial bread formulas with the German and Allied personnel. The formulas for commercial bread making had been developed for us by the Quartermaster bakery expert, Harry Howie, aided by the American Institute of Baking. Everywhere we were welcomed, for everyone was eager for information which would help them make edible bread using a high concentration of corn.

Our journey took us to the Ruhr Valley, and while in that area two members of the mission availed themselves of the opportunity to observe first hand the working and living conditions of the Ruhr miner.

The once-great industrial cities of the Ruhr are now ghost towns as far as livable dwellings are concerned. Most of the present population of workers live in the earth under the rubble in the cellars of the ruined buildings. There, in one- or two-room caves, the miners and their families exist. In Essen, one of the once-great cities, is located the great Amalie coal mine. Here two of us went 2700 ft. straight down into the pits, some not over 4½ ft. high, where the coal was being mined. In 2½ hr. under ground, much of nutritional interest can be observed: the water loss due to the excessive heat of the mine itself; the coal dust irritation to the mucous membranes; the energy consumed moving around in cramped spaces; the energy required to run a pneumatic drill held at an awkward angle in a narrow passage; the energy consumed in shoveling coal into conveyers from cramped positions; and the energy expended scrambling to shore-up spots to prevent cave-ins. Coal mining requires great energy and that means food. In our talk with the underground manager we learned, too, of the value that the miner puts on his health and his knowledge of his nutritional need. Typical of this is his knowledge of his need of vitamin D, which prior to defeat he obtained from ultra violet lights in the shower bath rooms of the mine. Now he absents himself from the mine on sunny days and coal production lags. All of these things influence the feeding of the German people, for coal is of the utmost necessity.

Back at Heidelberg, work was progressing on the third phase of our corn utilization program which was the publication of a popular booklet for the German housewife. This booklet was to tell her about corn as a food—its popularity in other parts of the world—and to give her a fine collection of recipes. These recipes were keyed to the Germans' food habits using only foods known to be available. I would like to add at this time that the presence of Katherine Holzclaw of Georgia State College for Women, Milledgeville, then in Germany, was of the greatest value to us. Dr. Holzclaw had not only coordinated and

organized women's groups for demonstrations which were later used to demonstrate corn cooking and dehydration, but she also shared with us her suggestions and opinions based on her experiences in Germany which contributed much to our success.

Finally the publication *Mais Ist Volksnahrung*, or "Corn Is People's Nutrition," was ready for the printer. Again, Professor Strughold and Reichsminister Dietrich had provided us with introductions, and Frau Schubert had written a clever text selling corn to her German hausfraus. To the recipes we had contributed, had been added suggestions by German housewives, women's clubs, and food institutes.

Our mission, insofar as we were able, was then completed, and we left Germany with the hope that future corn imports would create no great problem to either the Allies or the German people, and with the assurance that some winter stocks from summer gardens would be available this winter.

Therapeutic Components of Onion Vapors

The effect of onions on the senses of sight and smell make it obvious that the onion has some strikingly perculiar chemical components. Nevertheless, little work has been done to learn about the chemistry of onion vapors.

Walker and co-workers have shown onion vapors to possess bactericidal properties. In other investigations in Russia by Tokin on the bactericidal, phytoncidal, and protistocidal properties of plants, onions and garlic were found to be lethal to white Staphylococci, typhus, and a number of other bacteria, as well as to all protozoa. He also showed that by chewing onion 3 to 8 min., and sometimes for only 1 min., the buccal lining usually became completely sterile.

Another Russian study by Toroptsev and Filatova dealt with the effect of onion vapors on purulent inflammatory wounds. These workers exposed wounds to the vapors of onion paste. After the first treatment all wounds changed from a gray color to rose and pain ceased. After the second treatment purulence subsided, odor disappeared, and regeneration was induced. However, in a few cases regeneration ceased after several days of treatment, suggesting overexposure.

In experiments just reported by Kohman, a distillate from onions was prepared by a specially-developed process. This distillate was water clear, nitrogen free, and contained the tear-producing elements of the onion, as proved by a tiny drop in the eye. However, only a mild tear effect was produced when the eye was held against the mouth of the flask containing the distillate. Thus, the tear-producing effect appears to be due to instability rather than volatility, as thought by Tokin. This indicates that the expansive force of the onion tissue and its juiciness are responsible for this characteristic of the onion. Thus, when an onion is cut, invisible droplets of juice are dispersed which cause weeping.

Although the distillate had an onion odor, the residue retained the oils essential for the onion flavor.

When the distillate was allowed to stand, it formed a milky appearance, which could be cleared up with bromine, which formed sulphate. If redistilled, a gummy residue for which no organic solvent could be found was formed. However, application of bromine caused the formation of the usual quantity of barium sulphate. Tests showed that the residue contained slightly over 43 per cent sulphur. The sulphur content of thiopropionaldehyde and thioallylaldehyde is 43.2 and 44.4 per cent, respectively.

As a second part of this investigation, experiments were conducted to determine the quantity of sulphur-bearing, tear-producing substance in onions. It is estimated that 800 gm. of onion might contain 250 mg. of barium sulphate, although actual experiments produced only 190 gm., due to its instability even during processing. Calculated on the basis of 250 gm., however, this amounts to 100 mg. of thiopropionaldehyde per kilogram of onion. This thioaldehyde as well as thiopropionaldehyde, has not, heretofore, been demonstrated in nature.

Although other tests obtained propionaldehyde, Dr. Kohman believes that the thiocompound is the tear-producing agent, and that both substances are present, rather than that the tear-producing substance, thiopropionaldehyde, is later converted to propionaldehyde.

Since the tear-producing element appears, from this study to be a sulphur compound, a thioaldehyde, which has proved bactericidal properties, it is apparent that there is some sound basis for traditions concerning the onion's therapeutic effects. It is conceivable that eating raw onions has a curative effect on sore throats resulting from colds. Also, there is good reason for the bactericidal and phytoncidal properties of onion vapors, and such vapors may be useful in healing wounds. The author, however, feels that the components of onion vapors, if they have a place in medicine and surgery, can be made available more practically by synthetic chemical laboratories.—*Condensed from Science 106: 625 (December 26), 1947.*

The Ascorbic Acid Content of Cabbage[1]

SQUADRON LEADER H. D. BRANION, FLIGHT OFFICER J. S. ROBERTS, FLIGHT SERGEANT C. R. CAMERON, and SECTION OFFICER A. M. McCREADY

Number 1 Nutritional Laboratory, Medical Branch, and Number 1 Test Kitchen, Food Administration and Messing Branch, R.C.A.F.

THE amount of cabbage consumed in Canada ranks next to potatoes and carrots (1). Like many members of the leafy group of vegetables, cabbage is characterized by a rich content of ascorbic acid, being even higher in many cases than that found in citrus fruits and juices. Five hundred and seventy-nine samples of the edible portions of raw cabbage obtained from various R.C.A.F. stations across Canada between 1943 and 1945 showed an average ascorbic acid content of 59.2 mg. per 100 gm. as compared with an average of 52.4 mg. per 100 gm. for fresh oranges. For low-income groups, who are frequently unable to purchase citrus fruits or juices, cabbage, especially if eaten raw, can serve as a major source of ascorbic acid in the diet.

The effect of various factors, such as variety, soil conditions, and preparation, on the ascorbic acid content of cabbage has been compiled by Booher, Hartzler, and Hewston (2).

To investigate further the ascorbic acid content of Canadian cabbage, assays were made in 1943 of ten common varieties[2] grown in the same plot. These assays were repeated in 1944.

Assays were made by a method developed by Jackson (3). It is a modification of the method of Evelyn, Malloy, and Rosen (4), the dichlorophenol-indophenol method, using a photoelectric colorimeter. In the 1943 studies, individual assays were made on "edible portion" wedges taken from fifteen heads of each variety. In the 1944 studies, individual wedges were cut from ten heads of each variety. The outer leaves and core were removed from the head before the wedge was cut. The results of the assays are shown in Table 1. The Market, Acre, Ballhead, Glory of Enkhuizen, and Early Jersey varieties are the usual type of cabbages. Savoy varieties possess distinctly wrinkled, dark green leaves and are not grown extensively. The Red Rock is a variety with red leaves and is generally used for pickling.

Although all heads were of sufficient size and maturity for marketing, there was a distinct variation in their weight. The "as purchased" weight and assays of individual heads of four typical varieties are shown in Table 2.

In the 1943 study, assays were made on various parts of the head of the ten varieties in order to investigate the distribution of ascorbic acid within the head. The results are shown in Table 3. The term, "commercial trimmings," is used to designate the coarse, outer leaves which are ordinarily removed by the grower before marketing the cabbage. The word "trimmings" is used to designate the outer leaves of

TABLE 1

Average ascorbic acid content of edible portion of twelve varieties of cabbage

VARIETY	ASCORBIC ACID	
	1943	1944
	mg./100 mg.	*mg./100 gm.*
Copenhagen Market	58.2	43.6
Marion Market	65.2	44.5
Green Acres	59.4	47.4
Golden Acres	57.1	44.0
Wisconsin Ballhead		68.8
Danish Ballhead	79.1	62.7
Penn State Ballhead		61.0
Glory of Enkhuizen	70.4	
Early Jersey	66.8	
Drumhead Savoy	69.1	53.1
Chieftain Savoy	66.5	59.3
Red Rock*	111.1	118.8
Average (all varieties)	70.3	60.3
Average (excluding Red Rock)	65.7	53.8
Average (excluding Red Rock and Savoy)	65.2	53.1

* Thirteen heads only assayed in 1943 and three heads in 1944.

[1] Received for publication January 13, 1947.

[2] The authors are greatly indebted to Dr. J. H. L. Truscott of the Department of Horticulture, Ontario Agricultural College, Guelph, Ontario, for the provision of these varieties of cabbage.

TABLE 2

Individual ascorbic acid content of ten cabbages of each of four varieties

SAMPLE	WEIGHT AS PURCHASED	ASCORBIC ACID
	Marion Market	
	lb.	*mg./100gm.*
1	1½	57.0
2	2	51.5
3	2¾	44.2
4	4¼	44.8
5	4½	45.4
6	4½	42.3
7	4¾	43.6
8	5½	36.6
9	5½	38.2
10	5¾	41.6
Average.....		44.5
	Golden Acres	
1	1¾	42.3
2	2¼	51.0
3	3½	47.7
4	3¾	41.1
5	4	40.4
6	4	37.9
7	4½	43.5
8	5¼	39.8
9	6	48.9
10	6½	47.2
Average.....		44.0
	Danish Ballhead	
1	2¾	84.9
2	2¾	67.4
3	3¼	72.5
4	3¼	67.4
5	3¼	59.2
6	3½	52.5
7	4	62.0
8	4½	57.8
9	4¾	51.1
10	5¾	52.0
Average.....		62.7
	Chieftain Savoy	
1	2	65.7
2	2½	70.5
3	2¾	73.3
4	3	75.8
5	3	74.0
6	4¼	45.0
7	4½	43.5
8	4¾	57.4
9	5	40.0
10	5	40.0
Average.....		59.3

the "as purchased" head, as well as the core, which are generally removed by the housewife in preparing cabbage for consumption. The diagram (Fig. 1) illustrates the division of the head into inner, middle, and outer portions.

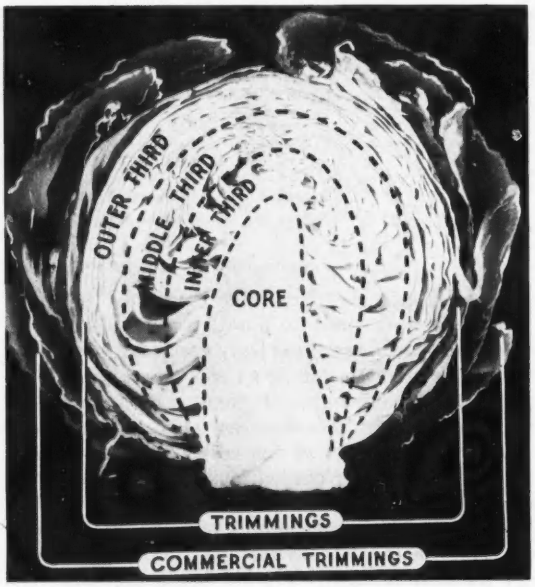

FIG. 1. *Diagram showing sections of a head of cabbage as used in this study.*

To determine the loss of ascorbic acid from cabbage during preparation, cooking, and serving in large quantities as well as small quantities, experiments were conducted in May, 1944, based upon "100 servings" and "4 servings" portions. The cabbage used for these tests were mixed lots as supplied by the Royal Canadian Army Service Corps. The cabbages were trimmed, cut in half, washed, drained, and cut into 2-in. wedges. These wedges were added to boiling, salted water and cooked in a covered kettle until tender. The cooked wedges were drained and allowed to stand on the steam table for sampling at the specified times. Each test was repeated three times.

In these particular tests, for 30 lb. of cabbage, 40 lb. (4 gal.) of boiling, salted water were used; the cooking time was 17 min. As a result of a series of cooking trials in the Test Kitchen, the following approximate figures are given. Thirty-five lb. of "as purchased" cabbage resulted in 27 lb. of "edible portion" and yielded, after cooking in 6 gal. of water, about 24 lb. of cooked cabbage, or 110, 3½-oz. servings. The cooking times varied from 12 to 20 min. after the water came to a boil.

The results of the assays are shown in Table 4. The percentage loss is based upon "edible portion."

Similar tests were made for "100 servings" portions of cabbage cooked by steaming in a low pressure

TABLE 3

Ascorbic acid content of various parts of the heads of ten varieties of cabbage

VARIETY	COMMERCIAL TRIMMINGS	AS PURCHASED	TRIMMINGS (INCLUDING CORE)	EDIBLE PORTION	EDIBLE PORTION		
					Outer third	Middle third	Inner third
	mg./100 gm.	*mg. /100 mg.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 mg.*	*mg./100 gm.*
Copenhagen Market	104.0	60.4	80.2	58.2	57.8	56.8	59.8
Marion Market	92.9	69.6	88.7	65.2	64.2	62.4	68.8
Green Acres	89.3	61.1	71.4	59.4	60.6	58.5	61.1
Golden Acres	85.9	57.2	63.5	57.1	56.6	55.6	58.6
Danish Ballhead	81.9	81.4	91.8	79.1	75.9	74.2	82.9
Glory of Enkhuizen	77.3	73.5	88.9	70.4	67.1	66.2	71.7
Early Jersey	97.3	68.2	80.2	66.8	61.2	58.8	66.7
Chieftain Savoy	78.2	67.8	74.5	66.5	60.2	60.7	80.1
Drumhead Savoy	83.8	72.5	78.0	69.1	63.4	61.4	79.3
Red Rock	99.1	116.8	129.7	111.1	103.0	102.4	116.4
Average	88.0	72.8	84.6	70.3	67.5	65.7	74.0

TABLE 4

Changes in the ascorbic acid content of cabbage due to cooking and holding

CONDITION WHEN ASSAYED	100 SERVINGS										ASCORBIC ACID IN CABBAGE BOILED IN QUANTITY FOR 4 SERVINGS				
	Ascorbic acid in boiled cabbage					Ascorbic acid in steamed cabbage									
	Trial 1	Trial 2	Trial 3	Average	Loss	Trial 1	Trial 2	Trial 3	Average	Loss	Trial 1	Trial 2	Trial 3	Average	Loss
	mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%
As purchased	60.4	62.3	56.1	59.6		58.0	59.5	63.1	60.2		49.0	59.1	56.1	54.7	
Edible portion	59.1	53.4	57.0	56.5		58.0	63.9	58.5	60.1		51.5	51.6	57.3	53.5	
Trimmings	46.8	46.0	55.4	49.4		31.1	50.5	34.8	38.8		40.5	52.3	54.3	49.0	
Core	84.3	72.6	71.6	76.2		67.8	65.0	80.0	70.9		64.0	66.6	68.6	66.5	
Cooking water	9.6	11.7	9.6	10.3		25.1	49.5	10.2	28.3		14.8	10.2	7.2	10.7	
Cooked cabbage	9.0	20.1	19.3	16.1	72	14.6	26.3	15.2	18.7	70	19.9	25.3	16.2	20.5	62
After holding 15 min.	8.3	14.2	13.6	12.0	79	10.5	16.7	16.1	14.4	76					
After holding 30 min.	10.5	10.8	8.8	10.0	82	9.9	13.2	12.7	11.9	80					
After holding 45 min.	8.9	12.1	8.1	9.7	85	7.7	11.3	10.2	9.4	84					
After holding 60 min.	8.5	8.4	6.9	7.9	86	7.3	9.2	8.8	8.4	86	8.4	9.9	9.4	9.2	81
After holding 90 min.	3.1	4.7	7.8	5.2	91	4.5	5.2	4.2	4.6	92					
After holding 120 min.	5.6	4.8	3.6	4.7	92	3.1	2.9	4.9	3.6	94					

steamer. The steaming time was 20 to 25 min. The results are shown in Table 4.

DISCUSSION

From a consideration of Table 1, it is apparent that there is a variation in the ascorbic acid content of different varieties of cabbage grown under the same climatic and soil conditions. It is also evident that there may be a variation from year to year. From the data in Table 2, and from other determinations, it would appear that the ascorbic acid content of cabbage tends to be lower in the more mature heads as judged by weight. It is realized that the weight of the head may be influenced by other factors, such as size and firmness as well as maturity. From Table 3, it is obvious that ascorbic acid is unevenly distributed throughout the head, the highest content being in the outer green leaves and, surprisingly, in the center of the head. The core, which is usually discarded, is a potent source. In another series of assays, involving twenty-one mixed commercial lots of cabbage, the average ascorbic acid content of the "edible portion" was 56.9 mg. per 100 gm., and of the core, 73.8 mg. per 100 gm. Insofar as the ascorbic acid content of the outer leaves of the head is concerned, some evidence is available to suggest that the higher ascorbic acid content is dependent upon their green color. If these leaves are faded, due to age or storage, their ascorbic acid content is much lower.

The results of the cooking tests (Table 4) show that the loss of ascorbic acid from cabbage as a result of cooking in large quantities, either by boiling or steaming, was high, being about 70 per cent. The loss in small quantity cooking, although less—60 per cent—is still considerable. These findings give emphasis to the importance of the consumption of raw

vegetables, such as cabbage, in the form of salads in order to insure minimum loss of ascorbic acid. Holding of the cooked cabbage on the steam table resulted in a further loss, which became progressively greater the longer the holding period, so that at the end of 2 hr. over 90 per cent of the ascorbic acid originally present in the cabbage had been lost. This is further evidence of the value of cooking such vegetables as cabbage by a staggered system, in small quantities suitable for immediate serving, thus eliminating the loss during holding in a steam table.

SUMMARY

Assays were made of twelve varieties of Canadian cabbage in 1943 and again in 1944 to determine ascorbic acid content.

The ascorbic acid content of cabbage varied between varieties, and in the same variety from year to year.

Small cabbage tended to have a higher concentration of ascorbic acid than large cabbage.

Cabbage, as purchased, usually had its highest concentration of ascorbic acid in the core which is frequently discarded by the housewife.

The loss of ascorbic acid as a result of cooking, in large quantities, either by boiling or steaming, was about 70 per cent. The loss in small quantity boiling was about 60 per cent.

Standing on the steam table after cooking further increased the loss of ascorbic acid. At the end of 2 hr. on the steam table over 90 per cent of the original ascorbic acid had been lost.

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Caloric Restriction and Bone Growth

In a study conducted at Duke University School of Medicine, Philip Handler, George J. Baylin, and R. H. Follis, Jr., found that in young rats the rate of skeletal growth was roughly proportional to the rate of general body growth when caloric restriction was the limiting growth factor. Restriction of caloric intake to about one half that of *ad-libitum*-fed animals, while ensuring an adequate supply of all other nutrients resulted in a complete cessation of both skeletal and generalized body growth. Histologically the bones of such animals were identical with those usually found in "partial inanition." In larger, not quite completely grown rats, caloric restriction, sufficient to cause a loss of 40 per cent of their initial body weight, only slightly decreased the rate of skeletal growth.

The plasma concentration of calcium was normal in all animals, while that of inorganic phosphate was below normal in the young, caloric-restricted animals, but not in the older rats. Caloric restriction in young rats, older rats, and parathyroidectomized older rats results in a markedly elevated plasma alkaline phosphatase activity.

Thus the authors feel that caloric restriction results in impairment of skeletal growth and that this phenomenon is more marked in young rats than in those whose growth is almost complete. Since growth and remodeling of bone are functions of age, this observation is not unexpected. Moreover, since skeletal growth, like that of any other tissue, is dependent upon cellular mechanism which requires an active carbohydrate metabolism, a disturbance in osteogenesis is not surprising.

The possibility of inadequate caloric supply must be considered whenever bone growth is being studied, independent of the supply of those nutrients which have a specific effect on bone formation, such as ascorbic acid, vitamins A and D, calcium, and phosphorus. It may be presumed that the classical picture of bone in inanition is more likely to be the result of an inadequate caloric supply than of any other single dietary factor. It would be of interest to determine whether this picture might be modified by the action of estrogens or androgens, since both can induce positive calcium balance, particularly in osteoporotics.

At present it is not possible to interpret the results of the blood chemical findings in these animals in a definitive fashion.

Although no evidence is available which demonstrates a direct control by the parathyroid of bone or serum alkaline phosphatase, it does seem strange that parathyroidectomy should not have affected the level of plasma phosphatase activity in caloric-restricted rats if the phosphatase were arising in the metabolically deranged bone. It is, therefore, felt by the authors that while the low plasma phosphate and high alkaline phosphatase concentrations in young caloric restricted rats are accompanied by osteogenetic disturbances, they are probably the consequence of an altered hepatic carbohydrate metabolism rather than of metabolic events in the skeleton.—*Abstracted from Journal of Nutrition 34: 677 (December 10), 1947.*

Well-Managed Eating Places Are Safe[1]

KENT W. FRANCIS

Service Industries Representative, Industrial Department, National Safety Council, Chicago

ACCIDENTS in a place of business are *prima-facie* evidence that conditions, employee practices, or both, are not completely under control. Good management keeps control. It is a natural step from this flat-footed assertion to the title of my paper, "Well-Managed Eating Places Are Safe." The wording of the subject is intended to throw responsibility for the prevention of accidents where that responsibility has to be. The manager who admits—without qualification—that what happens in his scene of operations is his responsibility, and his alone, is well on his way toward the solution to his accident problems.

That comment is certainly not intended to be critical and, in the light of management attitudes all too common in industry, it is not superfluous. Deeply rooted in our thinking there lies the tradition that "accidents will happen," and that every employee, as well as every employer, must take the risks of the trade in his stride. The tenacity of this tradition comes somewhat from the partial truth that lies in it. The reduction of accidents to zero in any industry—in kitchens as well as in foundries—is a desirable improbability. The undeniable fact remains: some accidents will happen.

For most of us, the practical problem is the problem of reducing accident losses to the point at which the costs of further reduction are too great to pay for the expected results. If that be heresy, at least let it apply to your industry, where disability, and not loss of life, is the more usual price of compromise.

THE TRADITION OF RISK

The acceptance of hazard as an inevitable price for employment gets support also from other factors. The American concept of free enterprise is often in conflict with the attempts of government to compel employers to remove hazards to life and health. Employees as well as executives often resent restrictions aimed at their protection. Men in the more rugged occupations sometimes think that safety measures reflect on their virility—on their ability to "take it." Furthermore, the survivor of a serious accident, like the survivor of a serious operation, has achieved a fleeting moment of importance and a durable topic of conversation.

Then there is the apparently limitless human capacity for clinging to beliefs that not only are not so, but are contradictory. We say that "accidents will happen," but we believe with equal firmness that "it can't happen to me." Many of us think that we, personally, will never be an accident victim in a newspaper headline; yet at the same time many of us are hypocritical fatalists, piously talking about "when my time comes there is nothing I can do about it." We don't really believe that, even though we say it. If we can trust eye-witness accounts, few of us give support to the doctrine of passive resistance when a taxicab swoops around the corner on our heels.

All of this debris of emotion, habit, and plain ignorance must be cleared away by any employer who wants to make headway against his compensation costs and his other, and perhaps greater, accident losses. He must clear it away from his own thinking and fight it constantly in the thinking of the people for whose safety he is responsible.

Thus we start with the maxim that most accidents are preventable. The irreducible minimum is much lower than we think—and very much lower than the level of loss currently experienced in most industrial kitchens and eating establishments.

WHAT INDUSTRY HAS DONE

The service industries generally have suffered from being non-hazardous by reputation. When one thinks of the fatalities and injuries of heavy industry of a generation ago, hospitals, hotels, restaurants, schools, and institutions should seem like havens of refuge for their employees. But the comparisons of 1947 are not so favorable.

To make the point that the tortoise may have overtaken the hare, let us consider what some industries have done in forty years. I do not offer these figures as proof positive of anything. They are intended only to justify your continued interest in the size of your own accident problem.

At the time when compensation acts were first

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 17, 1947.

sprouting on legislative calendars throughout the more progressive areas of the country, many plants in heavy industry were experiencing ninety and more lost-time injuries per million man-hours of labor, with severity rates proportionately high. Compare that slaughter with the injury rates now reported to the National Safety Council by its member industries: aircraft manufacturing, 6.4 lost-time injuries per million man-hours of labor; glass, 6.9; steel, 7.2; chemical, 10.1; automobile manufacturing, 11.1.

When we consider that the Council's Metals Section members alone employ a million people and report more than 2 billion man-hours per year for contest purposes, the scope as well as the progress of accident prevention work in heavy industry is impressive. It should be noted that industrial plant kitchens are included in the operations covered by these frequency rates.

It is regrettable that we cannot directly compare the accident experience of the service industries with that of the industries just named, whose frequency and severity rates are arrived at by use of the American Standard Method of Compiling Industrial Injury Rates. The standard method is the only means in general use by which the accident experience of various industries, and of units within the same industry, can be effectively compared.

HOW RESTAURANTS COMPARE

Such clues as we do have to the degree of hazard in industrial and institutional kitchens do not give us much satisfaction. They lead us only to the surmise that a great deal can still be done in kitchens and dining rooms to reduce compensation and medical costs, spoilage, breakage, and impairment of service.

The State of Pennsylvania, for instance, reports about 3000 lost-time injuries and fourteen fatalities for 1944 in eating and drinking places. The exposure estimated for the Pennsylvania experience is 82 million man-hours, which gives us about 36 lost-time injuries per million man-hours of exposure. Because of the limitations of information, this figure is probably too high. Taking it at face value, however, the Pennsylvania restaurant injury frequency was exceeded, in National Safety Council membership, only by the marine transportation, mining, and lumbering industries. It was two and a half times the average number of lost-time injuries for all industries, four and a half times that for steel.

The Bureau of Labor Statistics, reporting on about a thousand hotels and eating and drinking places, arrives at a more favorable frequency figure of 11.5. The 1946 safety contest of 106 New York hotels showed an average frequency of 13.9. Nearly 40 per cent of the injuries reported in that contest were incurred in hotel kitchens and dining rooms.

There is no comfort, either, in an analysis of compensation costs and insurance rates. Any assumption that, by and large, service industry injuries are trifling is not borne out by the evidence. The New York hotel contest revealed, incidentally, that the average loss of time per lost-time injury was 24.2 days. In dining room accidents, it was 49 days, in kitchens 30.8.

Comparing compensation insurance manual rates for the states of Illinois, Pennsylvania, and New York, we find that restaurant rates are 70 to 80 per cent as great as for machine shops in the same states. Comparison is made with machine shops because the latter represent a common type of enterprise and one as full of a miscellany of hazards as is likely to be found.

Hotels and restaurants reporting to the National Safety Council may be presumed to have active safety programs. Those reports, however, show an average severity rate (man-days lost per 1000 hr. of exposure) of .59. By contrast there are nine major industries, including aircraft manufacturing, glass manufacturing, and electrical equipment manufacturing, whose severity experience is better.

Thus, all the evidence shows that the hazards of kitchen and dining room operation need control. You will probably agree with me that it is better to have such control come from management than to have it forced upon management by legislation or by union pressure. The plain fact is that competitive business cannot afford the losses that follow from accidents, and non-competitive operators cannot justify the waste.

WHY BIG INDUSTRY SEES ITS PROBLEM

It should be no occasion for surprise that in the food production field there has not been attempted the same kind of nationally organized attack against the accident problem as that carried on by big industrial units. The initial problem is by no means so great and its scope not so easily seen. If the statement that a restaurant employee stands a better chance of being injured on the job than a man working in a steel plant at Pittsburgh or Gary should cause some surprise, the reason for that surprise is quite understandable.

It is no secret that, with notable exceptions on both sides of the equation, the big industry is the safe one. Membership of the National Safety Council includes more than 95 per cent of American industries employing 1000 or more people, yet numerically that figure is but a small part of the total number of industrial enterprises in the country.

The reason for that concentration of big industries in Council membership is not hard to find. Let me remind you, incidentally, that they—and the insurance companies, municipal departments, traffic people, schools, colleges, individuals, and other groups—are the National Safety Council. The headquarters office is merely the nerve center for their operations, the non-profit organization of their common effort to prevent accidents.

To repeat, an industrial unit employing thousands of people is likely to see the accident problem first and to hit it hardest. Two things force management's hand in the matter of accidents. One is an acute awareness of the frequency of accidents, because in total the big outfits have so many of them. The other is knowledge of their costs. Nothing makes frequency—even a very modest frequency—quite so plain as a large man-hour exposure. Nothing reveals accident losses quite so well as a high-powered accounting system that reveals the true losses incurred from accidents.

Large organizations can, and are likely to, ferret out those preventable losses which often masquerade as spoilage, high labor costs, customer turnover, and a thousand and one other items which so often escape direct attack because their true causes are partly hidden. These indirect costs of accidents have probably put many a man out of business so quietly that the victims never knew what hit them.

The statement that the well-managed kitchen is safe not only puts responsibility where it must go, it puts safety activities in their proper place. I don't mean last: I mean that the prevention of accident losses is only a part, although an indispensable part of a good management job. Any reasonable safety man will agree that the primary objective of any kitchen organization is not to prevent cut fingers, but to feed people.

HOW TO SET UP A SAFETY PROGRAM

The first thing to do in setting up a safety organization in your institution is to ask yourself whether or not you already have one. If you have a good organization for preparing and dispensing food, you have a good safety organization, or at least the major framework of one. All you may need to do is to supply a missing part here and there, fill it with gasoline, and step on the starter. Don't forget the gasoline; the lack of motive power stalls more good safety work than any other trouble.

The fundamentals of a good safety program have been recited many times. My excuse for listing them again is to give you time, with each one, to check against your own situation to see if you may not have, if not in detail, at least the essence of what it takes.

First: *Management support.* That is the gasoline. Without it you can coast down hill, but that is all.

Second: *A focus of responsibility—a key man.* There must be some *one* person, preferably one with both courage and authority, to do the driving.

Third: *A simple accident record system.* First-aid reports are not enough. Supervisors' reports, if you have them, are not enough. Neither are insurance company records enough. None of these things lists what, for prevention purposes, you need most—an exact statement of accident causes.

Fourth: *Policy, inspection, or other committees.* You may not believe in committees, but one job they do superlatively well is to educate themselves. If committee memberships are rotated, that accomplishment itself might justify their existence.

Fifth: *Inspection procedures.* Constant inspection finds hazards before they become accident causes. Done by a committee, the policing aspect of such work is mitigated.

Sixth: *The correction of physical hazards.* Traffic flow, materials handling, condition of equipment and fixtures, flooring, fire detection and fire fighting equipment, first-aid, and sanitation facilities must be right, or safety becomes just something that the employees ought to do. First-aid facilities should be part of any working person's environment.

Seventh: *An employee training program.* Second only in importance to the removal of physical hazards is the teaching of employees to do their jobs as they should do them.

In one form or another, you may already have these elements of accident control, with the possible exception of the records. Let us check over the seven again so that they may seem more useful.

THE INGREDIENTS OF SAFETY

Management. Unless you are the top person in your organization, you may have to start with qualified executive approval of your safety work. If that is the case, it will merely strengthen your bond with other safety people. On the other hand, if you handle the program well, your results will speak for you. Skepticism on the part of management at the start of a program may not only be justified, but will serve as a challenge to the people who have to carry it out.

Key person. If your organization is a large one, you may have a specialist in accident prevention. If you do, he is likely to be a staff, rather than a line official. If he is—or if you are—in a staff position, the fact must never be overlooked that without the full understanding and participation of department supervisors, the best built program will bog down.

Records. The missing factor in business records is too often just a simple listing of what accidents have happened, where they have happened, how, with what consequences, and what corrective measures were taken. For service industries, the National Safety Council has prepared a less complex form than those used in the procedures recommended by the American Standards Association. You can, of course, devise your own. Without some sort of cumulative record and analysis of causes, no organization knows where its safety program is going, nor where it has been. Action against hazards becomes

guesswork based on general impression. You already know a dozen of your most common accident problems by heart, but you may not have more than a vague idea about the causes which may lie behind them. Lack of such knowledge easily leads to generalization about cures and the easy but dangerous issuance of bulletins, orders, and directives.

Committees. The use of committees is so closely tied to labor-management relations that no formula will fit any given situation. This should be kept in mind, however—a very large percentage of kitchen and dining room accidents involve the human factor, often mistakenly called carelessness. These human failures can to some extent be stopped by training and supervision, but for really good results you have to *induce* people, not *coerce* them. Skillfully used committees can make the process of inducement easier.

Inspections. Inspection procedures you certainly have now. Perhaps all you need to do is to give slipping, tripping, cutting, and falling hazards a little more time and space alongside of the space for sanitation, machine maintenance, and table set-ups. Check lists will help, provided they are never so "perfected" that they cannot be changed to meet changed conditions. To avoid perfection, mimeograph them in small quantities; don't print them. And make sure you have a tickler file which will guarantee that safety recommendations are followed through to the bitter end.

Conditions. Physical hazards need not be corrected all at once. Start with the bad ones and with the ones most directly affecting the work and convenience of employees. Sometimes physical hazards are found after considerable study. Invite suggestions from the staff; they are the people closest to the job.

Training. Perhaps the biggest task faced by the kitchen and dining room manager, and the one for which he gets the least help, is the training of employees. Turnover is high, quality variable, time and teaching materials short. A bad situation is often made worse by the mistaken assumption that many food establishment jobs are too simple to need explanation—just anybody can do them.

Such is not the case. There is no operation so simple but that some minds will not grasp it, or that some mistaken habits of work cannot corrupt it. Industrial safety men have learned to take nothing for granted.

Consider the common nail. Anybody who can hit it can drive it safely, you may think. On the contrary, an inexperienced employee will hold a nail near the taper, so that a miss can result in a mashed finger. Properly held near the head, the danger is minimized. This simple illustration has complex implications.

Job analysis, carefully planned induction procedures, and persistent follow-up for every employee tie efficient work and hazard-free work closely together —so closely that a safe job and a good job become one and the same thing. To carry the principle a little past the truth, we might even say that the perfect safety program is one that eventually eliminates itself by becoming an integral and unselfconscious part of first-rate management. That is why the well-managed kitchen is a safe one.

THE PATTERN OF ACCIDENTS

The most exceptional thing about accidents is their universality. There are enough special and peculiar hazards in the world to keep safety technicians busy for a long time to come, but the great complex of accident causes that kill about a hundred thousand and injure ten million persons every year in this country fall into quite common and predictable patterns.

A friend of mine who had spent several years in one of the large circuses was showing some films of life under the "Big Top." It was "inside stuff"—animal trainers, acrobats, and aerialists at practice and at work. After the films were run, a man in the crowd asked—with that tone of curious hope some people often use for such questions, "Don't you kill an awful lot of people in that business?"

The answer revealed one of the basic truths of the safety business. "Yes, we do have accidents," my friend answered, "but not the kind you're thinking of. Most of our injuries are caused by men getting run over by wagons, struck by mallets, falling off equipment, lifting more than they can handle, and generally taking chances and getting in the way." In other words, it's just about the same all over.

You are familiar with the pattern of accidents in your own industry. It does not vary greatly from one analysis to another. A leading cause of injury is the edged tool—cleavers, knives, slicing and cutting equipment. Another major group of injuries are burns from hot utensils, fats, and spillage. Other high scorers on the accident list are lifting injuries (hernia and back strain), collisions in cramped quarters, finger pinching, and falls.

It is important to know these patterns of frequency. Such knowledge is a blunt instrument you can swing against your more common hazards. Those patterns mean that you must keep aisles and stairways clear; floors as clean and dry as possible, that you provide guarded machinery; platforms for people who reach coffee urns, racks, or other places for kitchen hand tools; double doors to dining rooms; floor drains; and dozens of other things prescribed by a good industrial designer.

Untrained people get hurt anywhere, and so that pattern of accidents means that you have to train employees to follow certain safe patterns of behavior. A basic list for food production units, subject to indefinite expansion, runs something like this:

(1) Keep floors reasonably dry, and with grease-free mops.

(2) Inspect dishes and glasses prior to washing and use.

(3) Dispose of or report defective equipment.
(4) Handle breakables with reasonable care.
(5) Keep unused knives, cleaners, and so on, in racks or drawers.
(6) Work with controlled haste and keep your mind on the job.
(7) Use pads and potholders when you need them.
(8) Wear suitable clothing, low leather heels, and so on.
(9) Use ladders and platforms; do not climb around on shelving or crates.
(10) Close doors with the handles.
(11) Do not open cans with cleavers; use the equipment provided.
(12) Bend over nails in crates, boxes, barrels.
(13) Turn pot handles parallel to the stove front.
(14) Stay in your own aisle and use your own door.
(15) Keep ice and food off the floor.
(16) Leave "splash room" in coffee pots, bowls, and so on.
(17) Do not overload trays, use tamps with meat grinders.
(18) Brush up or scrape up broken broken glass.

THE DIAGNOSTIC APPROACH

No ready-made list of accident prevention activities is good enough by itself, no matter how broad its coverage or how well supported by general experience. It is a "buckshot" approach and must be supplemented by a more exact knowledge of *your* experience, *your* hazards, and *your* special danger spots.

One source of exact knowledge lies in first-aid and other reports of accidents. The running record of minor injuries, none of which may warrant investigation, is itself a clue to the special problems of an organization. The medical staff, even if it consists only of an employee trained in first aid, can make the record of mine-run injuries infinitely more valuable by adding to it, in each case, a brief statement of the circumstances of accident. From such a record the alert safety man can spot many a source of trouble.

The first-aid record should be studied, if for no other reason than that minor injuries are minor only because of providence. Every small injury casts a faint shadow of permanent disability and death.

The more serious or unusual accident should always be investigated. A thorough job, aimed not at placing blame but only at preventing recurrence, may uncover enough bad conditions, unsafe practices, wrong procedures, and unsound attitudes to startle the most complacent administrator. Accident prevention based on knowledge gained in that way is bound to produce results. No investigation will produce results, it should be said, if it admits the word "carelessness" or any of its variations as acceptable evidence.

As I said earlier, the structure of the safety program is essentially the structure of good management. There's not much that the insurance companies or the National Safety Council can tell the experienced food organization person about the general nature of kitchen and dining room hazards, and even less about their special problems. What is most worth knowing the manager must find out for himself.

The service industries do need to learn that they are not exempt from the heavy drain of accident losses. Through the work of their various associations, or through participating in the work of the National Safety Council—or better yet, through three-way collaboration of Council, Association, and member—the operator of the comparatively small unit can learn what the big-unit industry learned long ago: that the safety dollar is the cheapest one he can spend.

Trade associations, insurance companies, state and federal agencies, and the National Safety Council are likewise good sources of technical and training materials. Perhaps employee materials are the hardest to find as well as the most needed. Persistent educational pressure can be applied only with variety and quantity in materials.

You are already familiar with the materials of your association and insurance carrier. Because of the elements of hazard common to all types of enterprise, much of the National Safety Council's basic resources may also be of use to you. Moreover, the Council has for the past three years been developing specialized materials for hotels, offices, restaurants, and other service industries. You are invited to inquire about them.

The safety job is well worth doing. Let us not deceive ourselves about the size of it, however. An effective and thorough accident prevention program in any establishment, no matter how skillfully blended with operating procedures, is an attempt not only to lift ourselves by our own bootstraps, but it is an attempt to move the human race out of many of its deep and comfortable grooves of thought and habit. Fortunately the rewards are great. We get satisfaction in humanitarian service rendered, and we get a bigger margin on the desirable side of the profit and loss statement.

Safe kitchens and dining rooms are evidence of people and conditions under good management. The converse is, of course, equally true.

Meatless Burgers

At the University of Arkansas, Dr. Barnett Sure has developed a low-cost, meatless food which may be used in recipes calling for ground meat, such as meat loaf, croquettes, and spaghetti. Made with milk, yeast, and other ingredients, the new food is said to be highly palatable and to have a protein content approximating that of lean beef.—*Food Field Reporter, November 24, 1947.*

Editorial

FRANCES STERN

The world has lost Frances Stern, known and honored for her great work in nutrition and allied fields, and especially as the founder of the first Food Clinic in the world. Giving of herself beyond the power of most, she touched life in most of its phases. She felt deeply and saw far, and will be remembered by those who knew and loved her for those inspiring qualities which stirred them to undreamed-of achievement.

Still active in her beloved Clinic, she died on December 23, 1947, at the age of 74. Her devotion to her work, thinking and reading for it, conferring with others about it, studying its relations to other phases of medical treatment, as well as her service to the numbers of people who sought her advice, helped her to forget her illness, to which she rarely alluded.

In more recent years, when physical disabilities were trying unsuccessfully to handicap her, the word from those about her in The Boston Dispensary, in her profession, and in the communal work she undertook was, "Stay with us, and think for us!"

The door to her office was never closed to those who needed help and advice. She listened to everyone—the patient, student, fellow-worker, the great in their professions—and all who sat with her went away with something to wonder at and cherish. She was in this world to serve, and for that she had utmost capacity.

The special form of the service she was to render can now be discerned in her early training. Instinctively she felt it and held to it as if it were a visible thread. A graduate of the Garland Kindergarten Training School in Boston, she was later to be found abreast, even ahead, of modern progressive education. A special student at Massachusetts Institute of Technology and associated with Ellen H. Richards there, she was well on the way to what became her great interest—nutrition education. She applied it with the children and young people of the Louisa May Alcott Club, which with a dear friend, Isabel Hyams, she established in 1895. Members of that club still meet and happily remember learning of nutrition and homemaking before these were the well-developed sciences they are today. Years followed in which she became Instructive Housekeeper under the Boston Provident Association and the Boston Tuberculosis Association and Health Inspector for the Massachusetts State Board of Labor and Industries. Then came the first World War, when she was appointed a member of the Home Economics Division, Federal Food Conservation Commission, and later, extension worker under the U. S. Department of Agriculture, to investigate the adequacy of food for the industrial worker. In France in 1918, as a member of the American Red Cross Unit, she became head worker for the Child and Family Welfare Association in Paris, for which she was given a medal by the French Government with the inscription, "Hommage de Gratitude." Miss Stern remained in Europe until 1922, and shortly before her return to this country to resume her work at the Food Clinic, she was honored by being accepted at the London School of Economics as a special student.

Miss Stern was visionary and at the same time practical. Perhaps her greatest vision and the event of greatest daring in her eventful life, was when she conceived of and put into execution a plan and method for giving food treatment to the out-patient, with the purpose of making medical treatment more effective. In 1918 she established in The Boston Dispensary a Food Clinic—the first of its kind in the world—which became the pattern for all food clinics that have since arisen. Today, its philosophy and its methods are the subject of study by leaders and students from all parts of the world. So potent has been her force that in 1943, on the occasion of the twenty-fifth anniversary of the Food Clinic, it was renamed the Frances Stern Food Clinic, and as such it will go on now.

So she followed the thread, discerned in early years, to the climax of her career. If she had lived she would have raised the climactic point to a still higher level.

She was writing, too. *Food for the Worker* was written with Gertrude T. Spitz and published in 1917. *Food for Your Body; Talks with Children*, written with Mary Pfaffman, appeared in 1932 and was revised under the title *How to Teach Nutrition to Children* in 1942. *Applied Dietetics* came out in 1937, and a third edition is now in preparation. *Diabetic Care in Pictures*, of which she was co-author with Helen Rosenthal and Dr. Joseph Rosenthal, was published in 1946.

She contributed numerous articles to professional

journals, among them, "The Nutritionist Looks at Mental Hygiene," which appeared in January, 1930, issue of *Mental Hygiene*. This article indicated Miss Stern's early awareness of the influence of environmental factors on personality, often found to be reflected in food behavior. In another article, "The Food Clinic Lives in Peace and War," published in this JOURNAL in 1944, she said: "In considering the role of the Food Clinic, I should like to quote the following statement by Glenn Frank: 'The interpreter stands between the layman, whose knowledge of all things is indefinite, and the investigator whose knowledge of one thing is authoritative. The investigator advances knowledge. The interpreter advances progress.' "

In connection with food treatment, Miss Stern developed methods of teaching nutrition. The Food Clinic became a center of training for many types of students—those preparing for work in applied dietetics, home economics, social work, community nutrition, medicine, dentistry, public health nursing, and teaching.

The Food Clinic was the first clinic to be selected for training of the foreign students brought to this country under the auspices of the Rockefeller Foundation. The course for dietetic interns preparing for food clinic work, developed by Miss Stern, was the first to be approved by the American Dietetic Association. That was in 1936. As a result of her belief and philosophy, on January 30, 1945, the Administrative Committee of Tufts College Medical School established a Department of Nutrition.

Instructor in Nutrition in the Medical School and Dental School of Tufts College, by which she was awarded an honorary master's degree in 1938; Lecturer in Applied Dietetics, Massachusetts Institute of Technology and Regis College; Instructor in the School of Home Economics of Simmons College, and Special Instructor in Nutrition, Simmons College School of Social Work; Instructor in Dietetics at Garland School of Homemaking, Boston University Department of Home Economics, and Framingham State Teachers College; Consultant to the Food Clinic of Beth Israel Hospital, the Y. W. C. A., The Burroughs Newsboys Foundation—these are some of the affiliations through which Miss Stern extended, for the benefit of the community, a knowledge of the principles of nutrition and the methods of teaching nutrition that she had developed through the years. To these should be added her work for the Jewish Philanthropies and Family Welfare Association and their summer camps.

Miss Stern's professional contributions were legion. One of the early members of the American Dietetic Association—she was accepted for membership in 1922—she was appointed the first chairman of the Social Service Section, the forerunner of the present Community Nutrition Section. In this capacity she served on the Executive Board for two years from 1926 to 1928. In addition to her contributions to this JOURNAL, which were mentioned earlier, she presented papers at a number of the Association's conventions in the period from 1927 to 1943. She was also an active member of the American Public Health Association and the American Home Economics Association.

A full life, and a triumphant life, its horizon as wide as the world! Very closely Frances Stern followed world affairs; the problems of race, religion, and economics; the strife between labor and management; politics; government; food production; legislation; distribution and costs. All were related to her work.

She demanded of others the best work they could render. How clearly she could see what a student or worker was capable of doing, and how grandly she helped him do it! A keen critic, as she contemplated a piece of work presented for her opinion—a student's thesis, or something for publication, or a plan for a community undertaking—she would unerringly point out its faults of structure and content, and she could point as well to the way for its reorganization along superior lines. The criticism always led to an accomplishment far more valuable than the author had envisaged.

And how rigorously she criticized her own work, analyzing it, comparing today with yesterday and with what would be true tomorrow, ever searching fields of knowledge—the sciences and the humanities—for what they could contribute to perfecting the service the Food Clinic was rendering to patient, student, and fellow worker, to public health and to the profession of applied dietetics! She was her own hard master.

Such a person inevitably gives more than is received. She was one of those who—

" build up greatest things
From least suggestions; ever on the watch,
Willing to work and to be wrought upon
They need not extraordinary calls
To rouse them; in a world of life they live,
By sensible impressions not enthralled,
But by their quickening impulse made more prompt
To hold fit converse with the spiritual world,
And with the generations of mankind
Spread over time, past, present and to come,
Age after age, till Time shall be no more.

Such minds are truly from the Deity,
For they are Powers." (Wordsworth)

—*Mary Pfaffmann*

NUTRITION FOUNDATION MAKES NEW AWARD FOR DIETITIANS

Both the profession of dietetics and the American Dietetic Association have been signally honored by a recent announcement of the Nutrition Foundation. According to Dr. Charles Glen King, Scientific Di-

rector, that organization's Board of Trustees, on the recommendation of the Scientific Advisory Committee, has provided for a new award for the purpose of giving the dietitians greater recognition in their professional service to the public. The Committee was moved to make such a recommendation by the feeling that dietitians probably contribute more to public benefit, yet receive less public recognition than any other professional group.

Not only is the dietitian as an individual to be honored by such recognition of her work, but the profession as a whole is receiving like recognition, for this has been granted to the American Dietetic Association, the professional organization of the dietitian. The award, as sent by Dr. King to Dr. Helen A. Hunscher, President of the American Dietetic Association, reads as follows:

This **AWARD** for outstanding accomplishment, together with a sum of $1,000.00 is presented to the American Dietetic Association:

IN RECOGNITION OF THE LEADERSHIP, INSPIRATION AND DILIGENCE OF ITS MEMBERS IN APPLYING AND IN DEVELOPING THE SCIENCE OF NUTRITION IN HOSPITALS, GOVERNMENT SERVICE, FOOD CLINICS, PUBLIC HEALTH AGENCIES, SCHOOL LUNCHROOMS, COLLEGES AND UNIVERSITIES, AND IN INDUSTRIAL ORGANIZATIONS, FOR THE ADVANCEMENT OF HUMAN HEALTH.
AND IN FURTHER TRIBUTE TO ITS MEMBERS WHO DURING THE PAST THIRTY YEARS HAVE STEADILY RAISED THE PROFESSIONAL STANDARDS OF DIETITIANS TO THEIR PRESENT HIGH LEVEL OF TRAINING AND SERVICE.

GREATER NEW YORK DIETETIC ASSOCIATION CONTRIBUTES $1000 TO PUBLIC RELATIONS PROGRAM

A contribution of $1000 to the American Dietetic Association to help defray the expenses of the Association's public relations program has been made by the Greater New York Dietetic Association. In a letter to Dr. Helen A. Hunscher, A.D.A. President, Mary K. Bloetjes, President of the Greater New York Dietetic Association, explained that the members of that Association "are wholeheartedly interested in the public relations work A.D.A. has undertaken, and we sincerely hope that this contribution will materially aid in achieving the aims of this program."

As announced in the January issue of the JOURNAL, the J. Walter Thompson Company has been retained to conduct a public relations program for the American Dietetic Association.

In thanking the New York group, Dr. Hunscher said that the Greater New York Dietetic Association "is to be praised not only for its outstanding generosity, but for its fine professional spirit and leadership. I know that when this news reaches the Board and the members as a whole, there will be rejoicing over the electric spark your group has given to show the magnificent spirit of the members of our Association."

Three-Cent Meal

Dr. Henry Borsook of the California Institute of Technology recently announced that he has developed a preparation made of soybean grits, onion powder, hydrolyzed yeast, salt, herbs, spices, vitamins, and minerals. One 2-oz. portion of this food costs only 3 cents and is said to be equivalent in nutritive value to a full meal consisting of ¼ lb. meat, a glass of milk, and normal servings of green peas and potatoes. The nutritive composition of this food is said to be: 42.3 per cent protein; 4.51 per cent fat; 35.05 per cent carbohydrate; .46 per cent calcium; and .0123 per cent iron. Because this preparation is low in caloric value and lacking in ascorbic acid, Dr. Borsook suggests that when it is used to make up a meal, bread for caloric value and an ascorbic acid supplement be added. Besides being nutritious, it is said to be highly palatable.

Named "Multi-Purpose Food," and familiarly called "MPF," this food looks something like brown rice and is shipped dry in cans. It takes on the flavor of any food cooked with it, thus making it of value as an extender. When boiled for 10 min., it makes a kind of soup or porridge, which has a slightly meaty taste and does not have a flavor which is characteristic of soy beans.

MPF is being marketed by a non-profit organization, Meals for Millions Foundation, whose plant in Gilroy, California, has a capacity of 10 million lb. a month. Originally developed for relief feeding purposes, Dr. Borsook hopes that with the shortage of grain and meat in this country, the government will soon wish to use large quantities of MPF in our rehabilitation program for hungry Europe and Asia. Although Meals for Millions is organized primarily to take care of large quantity orders for relief shipments, there is also developing a large demand for small quantities to be used in this country by people who wish to combat the high cost of living. For small quantity buyers, it is being sold in 20-oz. cans for 30 cents plus shipping charges. No patent has been taken out on MPF, but if domestic demand continues, some attempt may be made to commercialize it.—*New York Times, November 30, 1947.*

Current Comment

COMMUNITY NUTRITION PROGRAM FOR CHILDREN[1]

MIRIAM E. LOWENBERG, PH.D.

Nutritional Supervisor, Rochester Child Health Project, Rochester, Minnesota

The Rochester Child Health Project is an overall program designed to promote good physical growth and emotional development among the children of Rochester. The staff of the Project works closely with the Rochester-Olmsted County Health Unit and the Rochester Public Schools. Through an administrative council composed of representatives of the administrative staff of each of these organizations, all programs are carefully integrated.

The project has a threefold purpose—prophylactic, educational, and research. Of primary importance is the prophylactic program which attempts to give each child and his parents the best health care possible.

The project must also have a teaching aspect. Each fellow in pediatrics at the Mayo Foundation is assigned for a period of service in the well-child clinic as a part of his training. In-service training in nutrition is conducted for public health nurses and the public school teachers, who carry responsibilities in relation to the Project's children. Planned seminars and conferences, as well as day-by-day conferences as the need arises, are used to coordinate all parts of the teaching. Broad programs for teaching parents are also being planned. This is done through classes in the community evening college and through a seminar on growth and development which is open to anyone in the community. The central council of the Parent-Teacher Association is also assisting in planning educational programs for parents.

In the teaching and preventive work with individual children, each staff member of the Project acts as the supervisor in his or her particular area of interest. A psychologist, a psychiatrist, a nursery school director, and a nutritionist complement the work of the pediatricians on the staff.

The third major function of the project is to conduct research on the children included in the study, including evaluation of methods used in changing the environment and evaluation of methods of teaching on a community-wide basis.

The nutritional program of the project was organized in January, 1946. The first children had been registered at the project two years previously. Corrective work, teaching, and research studies are parts of this nutritional program. Most children born in Rochester since January, 1944, routinely have become subjects of the Project. The work with the individual child begins the day of birth. At that time, the records on the child are opened. Among the many types of information which are collected, the data on feeding behavior are recorded with special care.

Breast feeding is encouraged. Pediatricians and nurses advise and help the mother to nurse her infant. Where the pediatricians believe that a change in hospital routine will benefit the baby, such a change is made as conditions permit.

Within 24 to 48 hr. after the mother and baby leave the hospital, a public health nurse makes a visit to the home. She demonstrates techniques of care in accordance with the mother's need for help. Often she shows the mother how to prepare the formula and helps her to understand the feeding procedures.

The mother is invited and urged by the nurse to bring her infant to the well-child clinic when he is between four and six weeks old. At this clinic, during the examination by and conference with the pediatrician, the mother reports on the feeding behavior of her infant. She also receives help from the consulting pediatricians with her individual problems. The nutritionist may be called in for consultation on individual feeding problems, for the mother may need help beyond that which the pediatrician and public health nurse are prepared to give. The problem of cooking the necessary food in a manner acceptable to the child often comes up.

Public health nurses who make the home visits are also requested by the mother to give help with many family feeding problems. The nutritionist carries on a constant in-service teaching program with these nurses. Last summer the nutritionist and the nurses had a series of nine discussions on problems which the nurses meet constantly. These discussions were very lively and led the nurses to

[1] Presented at the Dietetic Section of the Tri-State Hospital Assembly held in Chicago, on May 6, 1947.

comment that dietetics really could be more interesting than it was when they took it in training. I think that dietitians teaching dietetics to public health nursing students would do well to inquire as to the type of information on nutrition which will be really functional from the standpoint of the type of work the prospective nurse is to do. The nurses cooperating with the Project were especially interested in the methods of improving poor food attitudes and habits. I believe that in these courses an evaluation of methods of helping improve food habits needs to be given. Young children can often be helped to accept milk, for instance, if it is warmed slightly or served in a small glass. Then the child is not overwhelmed by a large initial serving. The nurses were interested in visual aids for teaching which they could carry with them in their supply bags. During the period when they were devoting their attention in staff meetings to nutrition, they became more alert to many problems. The nurses in one group, for instance, were interested in the potency of various vitamin preparations which were being prescribed for the children in their clinics. As a consequence the nursing staff prepared a chart of information on all of the vitamin preparations sold in Rochester. In this chart the costs for amounts to provide Recommended Daily Allowances were listed. The consulting pediatricians in the well-child clinics as well as the nurses now use this chart routinely.

Whenever the nurse needs special help with a problem in nutrition in a home, the nutritionist accompanies her on a home visit. The occasion of this interview with a mother can be used to teach the nurse new approaches to old problems of nutrition. Then the ultimate value of this interview lies in the discussion later, by the nutritionist and nurse, of the success of the methods used with the mother.

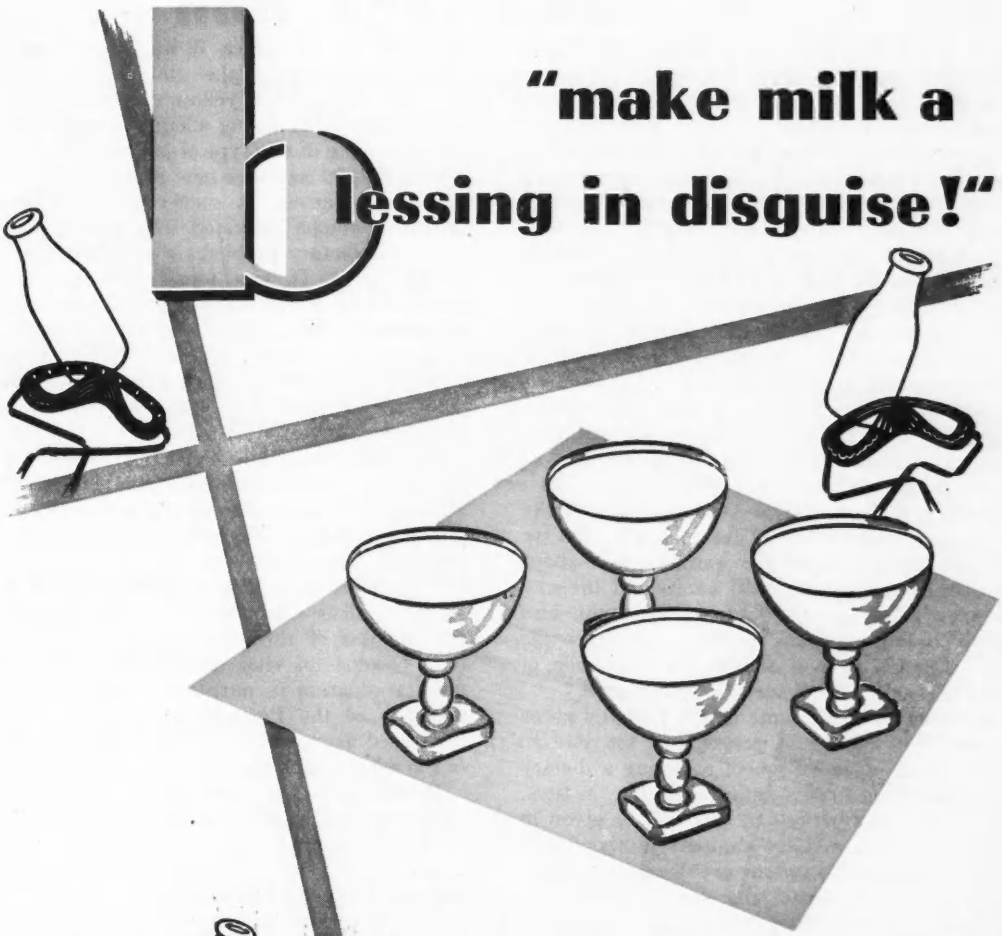
Fellows in pediatrics also are provided with consultation services in dealing with children's feeding problems. The nutritionist gives this service when the fellows request it. Group discussions and food demonstrations are especially helpful. A nutritionist who understands how to buy foods economically and how foods can be handled in preparation to make them more acceptable to children can offer the fellow in pediatrics much help. Many mothers need help and instruction in preparing such a simple food as a child's cereal so that the child will like it. Often a food itself, rather than the method of preparation, is blamed when a child refuses it. A nutritionist with training in the many phases of nutrition can help the pediatrician analyze and solve the problem.

Since the program is preventive, it is believed that the time of the birth of the baby is too late to permit effective instruction on diet to be given to the mother. Since it is believed that the health of the baby can be influenced by improving the mother's diet during pregnancy, efforts are being concentrated in this area. This is of such importance that consultation in nutrition in prenatal clinics has been made one of the major parts of the nutritional program. It was only necessary to give the public health nurses a review of some of the research in this field of knowledge to make them want to do the job in relation to nutrition as thoroughly as possible.

Each woman who visits the prenatal clinic for the first time sees a public health nurse who is assigned for three months to interview patients on diet. Dietetic interns in a local hospital training school participate in these conferences. Formerly these dietetic interns gave all of the instruction on diet to the pregnant woman. However, this procedure has been changed, since each dietetic intern has the opportunity to attend the prenatal clinics for only a two-week period. It is thought that the nurse can give more adequate supervision of diet than the dietetic intern because the nurse knows the woman and her background well as a result of visits to the home which either she or another staff nurse has made. The record of each woman whose diet is inadequate is flagged so that she is referred, on her next visit to the clinic, for an interview in which her diet is rechecked.

The supervisor of public health nursing, the educational director of the dietetic interns, the staff nurses, and the nutritionist work on devices and methods for making the interview on diet effective. A diet sheet is now used on which the nutritional adequacy of the woman's diet on the previous day can be quickly computed. The dietetic intern computes the diet while the nurse is talking to the woman. When these figures are available, the nurse can help the woman to see why her day's diet was inadequate and how she can improve it. The nurse also inquires into the reason for dietary inadequacies; for instance, if the woman's intake of milk is low, the nurse finds out why. If the woman dislikes milk, she needs patient handling and help to make her see the necessity for adding milk to her diet at this time. It has been found that it is usually possible to discover some method of serving the milk which she will accept. Although she gives her young children cod-liver oil, she has not thought of her unborn baby as needing it, too, for growth. The mother is helped to find an acceptable form of a vitamin D preparation. It has been found that there is practically no resistance on the part of the woman to taking the needed foods when she has been taught why they are necessary. Care is always taken to key the explanations to the woman's level of learning. The women are interested and, almost universally, report proudly on subsequent visits that they are eating the recommended foods. For the women who cannot afford the necessary foods, pro-

"make milk a blessing in disguise!"



When milk is an essential nutritional factor (as in infancy, early childhood, pregnancy, gastro-intestinal and post-operative conditions), and yet it cannot—or will not—be taken by the patient . . . try "dressing up" this dietary "must", with the aid of "Junket" Brand Rennet Powder or Tablets. They make uncooked milk a true blessing in disguise by transforming it (easily and quickly) into appealing, flavorful rennet desserts. Rennet desserts are not only tempting to eye and palate; they retain the nutritional values of milk, yet are more easily and rapidly digested by virtue of the softer, finer, more flocculent curds produced in the stomach by rennin's enzymatic action. "Junket" Rennet Powder is available in six natural flavors, already sweetened; "Junket" Rennet Tablets are supplied unsweetened and unflavored (particularly valuable for diabetics).

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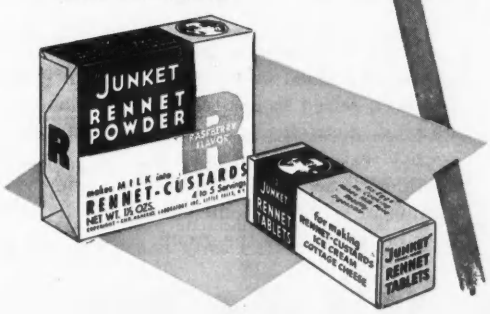

"JUNKET" BRAND FOODS

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LITTLE FALLS, N. Y.

vision is made through local social service agencies for supplements to the family income.

Women who have not had this dietary instruction for one reason or another are now asking for it. They have recently even called my office and asked to come for a check on diet. In all of these dietary interviews effort is made to be understanding of a woman's problems and to lessen any nervous tensions attendant on the condition of pregnancy. The public health nurse is forthright in her statements without being autocratic or dictatorial. Hence, the woman senses the genuine personal interest of the nurses. Recently, for instance, a farm woman told of the off-flavors in the family's milk due to certain weeds the cows were eating. An understanding nurse spent some time with her in finding out what could be added to the milk to mask the undesirable flavor.

During the dietary interview the woman is usually found in a receptive mood to discuss a good diet for the entire family. Often she wants to talk about her husband's undesirable food habits and the way these affect their young children. She may also bring up feeding problems of other children in the family. Enough time is allowed for discussion of any and all feeding problems which may arise.

Most women do not come to the prenatal clinic until the third month of pregnancy—too late to permit a really effective job of changing a dietary pattern to be done. It is anticipated that, in time, group or class instructions in diet will be given in the public schools. Many students in the public schools in Rochester drop out of school after junior high school. It is hoped, therefore, that this instruction in diet may be included in the work given in junior high school. Possibly a unit on nutrition can be incorporated in a course dealing with the growth and development of the child.

I believe that it is easier to change the food habits, and attitudes when the child is young than it is after he becomes an adult or even an adolescent. If an effective job is to be done in changing food habits it will be necessary that work be done in the elementary schools. Part of the nutritional program is concerned now with helping teachers to incorporate effective teaching in nutrition beginning in the first grade. It is hoped that the teachers will find it possible to incorporate discussions on nutrition in all the subjects in their curricula, and plans are being made in this respect. One school has been used for a pilot study. Now the school administration has asked to have this program put into all elementary schools in Rochester. The first step in this program was to obtain the parents' cooperation in keeping a three-day record of food that their children ate. The children also took a food information test. These two surveys are providing a basis for planning a nutritional program to fit the exact situation. For instance, it was found that only a small percentage of the children had sufficient amounts of green and yellow vegetables, and many children were not eating adequate breakfasts.

The making of this type of preliminary survey has proved helpful as other new programs in nutrition have been started. A survey of the diets of 162 pregnant women provided information as to the particular dietary problems with which the women needed help. It was found, for instance, that many women were very hungry and ate diets high in carbohydrates and fat during the fourth, fifth, and sixth months of pregnancy. They then went on rigid reduction diets during the following months. Only 26 per cent of the women were taking adequate amounts of vitamin D.

The work with the nutrition of the school child has led to work with the school lunch program. Some of the girls in the upper grades who are eating lunches at school will soon be the mothers of the Project's children. A matter of further concern is the fact that in 1950 the first group of Project children will be eating their lunches in school. The effectiveness of the school lunch program, therefore, becomes of vital importance in a total community program in nutrition. The radio and the meetings of the Parent-Teacher Association have been used as means of interpreting the possibilities of the school lunch program to teachers and parents.

In summary, the community program on nutrition promoted by the Rochester Child Health Project has attempted:

(a) To be a truly preventive program by giving help at the time when problems may be prevented.

(b) To work with the agencies existing in the community, namely, the public health department, the public schools, the social service agencies, and existing parents' groups.

(c) To give in-service training in nutrition to every person who can be used to spread teaching in nutrition.

(d) To answer all requests thoughtfully and to be available to help any and all groups. It is believed that the program will have deep roots if the requests come from people needing the help.

(e) To use all available means of disseminating information. Radio, press, and talks given to various groups help to acquaint the community with the services in nutrition that are available for the asking.

(f) To mobilize and coordinate the efforts of all personnel trained in nutrition. Each opportunity has been seized to get teachers of home economics, hospital dietitians, and home economists of the county extension service together for work on common projects. It is hoped that home economics graduates who are homemakers in Rochester also may be drawn into the group.

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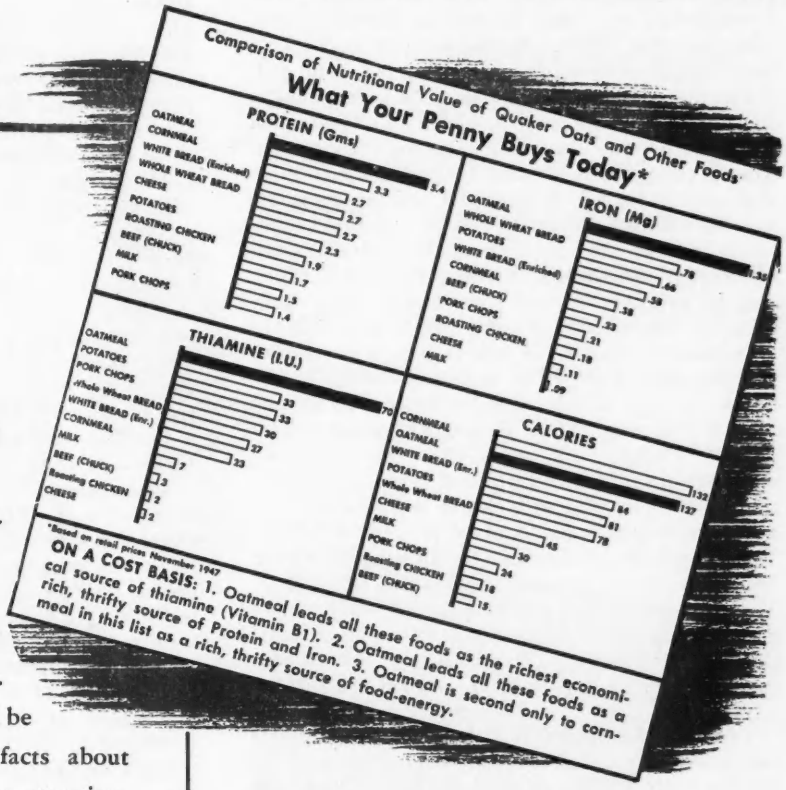

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CONSULTING SERVICE TO SMALL INSTITUTIONS IN VERMONT[1]

KATHLEEN VAN CLEFT

Consulting Dietitian, Department of Public Health, Burlington, Vermont

When I was offered the position with the Vermont Department of Public Health as a consulting dietitian to small institutions, the details seemed a little vague. I consoled myself with the thought that I would find out what consulting dietitians were doing in other states. It was a bit of a shock to learn that there were few upon whom one could call.

The first gleam of hope came when I found in the files a circular letter from Bessie Brooks West, then President of the American Dietetic Association. Among the projects of work for the Association in 1945–46 was listed, "Suggested Plans for Organization for Offering Various Types of Dietary Calculation Service to Institutions Without Trained personnel." Chairman of this project was Felisa Jenkins Bracken. I sent for the scrapbook compiled by that committee and found it most helpful.

In order to explain the approach used in creating this new service, it will be necessary, briefly, to describe Vermont and the characteristics of its people. First let me ask, "What do you know about Vermont?" Perhaps you know that the mountains are green in summer and white with snow in winter, that they are covered with slender white birch trees, and that it sounds like a place to wear ski pants. The central part of the state, comprising the Green Mountain Range, has an average snowfall of 10 ft. There is something more you should know—there are more cows than people—and we are proud of it! Our children drink milk though it may come from a can, since the fresh milk brings a good price in the city.

Vermonters are nutrition-conscious for there have been several surveys. One was made in Bennington, another in the Burlington area, and for the past eight months one of the U. S. Public Health Service Nutrition Survey Units has been working in the Brattleboro schools.

One of the characteristics of Vermonters is that they make their own decisions from their own personal experiences and observations and, when convinced, take action. Milla E. Newland, Chief Nutritionist of the Maternal and Child Health Division of the Vermont Department of Public Health, saw the problem which was facing small institutions when they asked for her help but was unable to fit anything more into her already full schedule. Characteristically, she tried to do something about it. The result was that a new position was created and filled.

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 16, 1947.

Vermonters do not take other people's say so; they prefer to talk things over among themselves and still hold genuine town meetings. Today they discuss such things as their share in the salary of the public health nurse. They have a pay-as-you-go policy and feel they cannot afford things until they can pay for them.

Theirs is a proud, old New England heritage whose roots go as deep as the roots of the elms which arch the streets of every village. There are many small villages where personal relations are important. This fact profoundly affects the hospital situation. The hospitals serving these villages are necessarily small—from twelve to fifty beds on the average. Many are remodelled private homes which do not lend themselves to hospital units. This fact alone is the cause of many of their problems.

The program of the consulting dietitian began without fanfare. A simple announcement that the services of a consulting dietitian were available upon request was sent to small, private hospitals, nursing homes, and children's institutions which are unable to employ a full-time dietitian. This was something new and different. Twenty-five per cent responded with a polite acknowledgment and cautiously stated they would be glad to have the consulting dietitian call when she was in their area.

Progress of the service has been slow, resembling that of a measuring worm. The service inched along from one request to another. Miss Newland took me to several children's institutions before she started on a four-month leave of absence. In these first visits one problem was apparent; all were experiencing difficulties in planning supper menus. To meet this problem, that same month a supper menu service to institutions was started. This service includes lists of simple, easily prepared, seasonal foods adaptable to children's homes and hospitals and recipes for fifty servings. It is issued monthly.

Several of the superintendents and matrons remarked during the visits that they were unable to take the time to go to the markets and could not follow the market prices carefully enough to take advantage of them. The next month the *Food Digest* was inaugurated. Excerpts from various market reports and news items which are received in the office each month are copied. The source is given in each case, listing the abundant foods for the coming month, the good buys, and buying hints, such as how to judge whether pullet eggs, medium or large eggs are the best buys. Bits of educational information or items which might prove of interest are also included.

Then came such questions as: "Where can a large-sized double boiler or six ten-cup percolators be purchased?" Catalogues which were scarce and difficult to obtain last winter were collected to use as references.

The head of a boys' school was drawing tentative

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plans for a new building to include a kitchen, dining room, storage space, and root cellar when I called. It so happened that the three articles on "Planning the Floor Layout for the Food Service Department" were appearing currently in the JOURNAL. Reprints were obtained, and a flow chart and floor plans for that particular institution were worked out.

Practically the only work which has been done for a state institution has been for the state school for mentally deficient children. Its menus for several weeks were checked for the Basic Seven foods, then some of the daily menus were analyzed. They were found to be low in certain nutrients including vitamin A, niacin, and ascorbic acid. Since the exact size of the portions was not known, it was decided that a more accurate check should be made by taking the complete storeroom issues for a week and figuring the total amounts consumed in each of the following groups: milk; potatoes; dried beans and peas; citrus fruits and tomatoes; green and yellow vegetables; other fruits and vegetables; meat, fish, and poultry; flour and cereals; fats and oils; and sugar and sirups. The total requirements for the children were figured, using the standards of the Bureau of Human Nutrition and Home Economics. The total food consumed in each food group was listed and below it the total requirements for a minimum adequate diet. Items showing inadequacies were circled in red. Explanations and recommendations were made. The first check was made for a week in December and a second in February. The food cost was also analyzed.

One hospital superintendent asked if I could spend two days studying that institution's food service, checking kitchen activities, tray service and nurses' dining room service, and making menus. One of the problems was that of an excellent cook of foreign birth who, although she could speak and understand English, could neither write nor read the menu, the cook's list, or recipes. In addition she was troubled with varicosity and age. I asked the cook's permission to sit at a kitchen table and write the menus. After she had grown accustomed to the presence of a stranger in her domain, I began to ask her about her job, and soon we were exchanging ideas of better and easier ways of doing routine tasks. Two pleasant and profitable, though rather long days (from 6 o'clock in the morning until 7 o'clock in the evening) were spent in the kitchen and on the wards. The recommendations and suggestions were discussed with the superintendent before they were presented in writing. For example one small suggestion was that an extra operating room cart be used by the maid to transport dishes from the dish machine to the pantry where her trays were prepared. This lightened her work considerably.

In another hospital two doctors asked that a simple diet manual for certain of the more common diseases be prepared for the use of the nurses and cooks. It was compiled giving a sample menu for one day, together with lists of foods which could be substituted. This was approved by the doctors before it was put into use. Special diabetic diets were also figured and prepared on request.

On the whole there has been less trouble with the high cost of living in the children's homes and some hospitals than one would imagine because most of the homes and some few hospitals have gardens, use frozen food lockers, and can fruits and vegetables for winter use. Some have dairies, also.

One nursing home, however, was experiencing trouble in keeping within its budget. The new superintendent did not know how to compute the per capita ration cost each month. In order to know where it would be possible to economize without undermining the diet of the patients, a careful check was made, similar to that for the state school described above. The total storeroom issues in different food groups for a month were checked against the total minimum adequate requirements for the pregnant women and mothers post partum. A fairly simple procedure was worked out using a perpetual inventory. The first and second months I rechecked and found that the superintendent considered the time spent in keeping the records worth while for it gave her a feeling of confidence to know that she was within the budget.

A third hospital had a problem of breakage and sterilization of dishes from isolated trays and inquired if plastic dishes were practical. A short study and inquiries brought to light a very serviceable grade of plastic dishes.

Yet another query came about the comparative value and price of soap and synthetic detergents. A day spent in the university and public libraries produced such practical information that a circular of the value of synthetic detergents was prepared.

Thus the service inched its way along for the first six months. To make an evaluation of its worth, letters were sent to all the institutions which had received service. All but two responded and asked for its continuation. One of the two which did not reply was a school which was closed for the summer and has since answered favorably. The other was a school which was very deeply involved in troubles aside from those of a dietary nature.

A personal letter announcing that specific services were available was sent to the superintendents or matrons of twenty-two nursing homes and other institutions which had not received help. There was a 41 per cent response, all but one requesting supper menu service.

I have visited practically all the small institutions in the state—some several times—spending differing lengths of time as they requested. I have talked with the people in charge and worked with them. It was found that they have certain problems in com-

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mon among which is the great need for additional personnel of all types, including dietitians and cooks.

There is a great need for cooks, thrifty cooks. The majority of the hospitals and homes have taken on housewives who are doing their best, but there are not enough of such women.

I have appealed to the home demonstration agents for what I call "5-point widows"—widows (a) who want to work, (b) who are good cooks, (c) who are thrifty housekeepers, (d) who are willing to move away from their homes, and (e) who want a good room with light, heat, and running hot water.

One of the happiest hospital kitchens is one in which the problems of cook's helpers has been solved by taking three girls from the state school mentioned before. They had received carefully supervised training in quantity cooking in the school kitchen. These girls live in a part of the nurses' home more or less under supervision and enjoy the privilege of being gainfully employed.

There should be a place where those who are already good cooks could receive a short training course and be given a little more knowledge and confidence in quantity cookery, so that they will be better qualified to take positions. To date there is not even a suggestion of a solution to this problem.

In addition, there is a need for several places where students could be trained in quantity cookery, but in Vermont, there is only one. During the last two years a course has been offered in one high school in which the pupils attend classes for a half day and spend the other half in the kitchen of the cafeteria preparing the noon meal for their own school and two other schools as well. The course is still new and not too popular, but it is hoped that when the younger pupils see the demand for those who have taken the course, more boys and girls will elect it. Then, too, it is hoped that arrangements can be made whereby the students will gain more real experience by serving as second cooks in some of our better, small hospitals.

Thus far our program has progressed unaided. It has not had support such as that of the program now underway in Illinois, where cooperation is given by the Illinois Hospital Association, the Illinois Dietetic Association, and the State Health Department. In Illinois last spring the small hospitals even enjoyed a trial series of local dietetic conferences. Our program, unfortunately, has not been so well nurtured.

Wherever I have gone, however, I have had a cordial reception. People have told me about their troubles, about their need for nurses and other trained and untrained personnel, about the cooks who open a can for one or two servings and let the rest spoil, about the difficulty of obtaining equipment, about the need for repairs which are costly, about the price of meat, and about the need to expand the facilities to take care of larger demands. I listen and try to find one point on which I may help them. Although my title is "consulting" dietitian, I believe it would be more descriptive of the position if it were "listening" dietitian. People want to talk their problems over with someone who has worked in institutions, who knows their daily difficulties, and they feel better for it. The value of such visits cannot be measured or listed on monthly reports, but they form a basis of mutual trust and understanding without which the service could never succeed.

Other dietitians may find themselves in a similar position with no active organizations with whom or through whom they can work but they may still fill a need. For, to paraphrase a well-known saying, "they also serve who only sit and listen."

FOOD ADMINISTRATION IN SCANDINAVIAN HOSPITALS[1]

MARY K. BLOETJES[2]

Director of Dietetics, Hospital for Joint Diseases, New York City

The Scandinavian countries in general have highly developed programs for health insurance. All hospitals are almost entirely supported by public (either municipal or "state") funds. This type of operation, of course, obviates distinctions such as we make in hospital care in our voluntary hospitals, i.e., ward and private service. All patients receive the same hospital care and are considered ward patients. Accordingly, they all receive the same kind of food service, i.e., a non-selective menu with the exception, of course, of those requiring special foods because of individual physiological needs.

The fact that most Scandinavian hospitals are of pavillion-type construction (many separate buildings in contrast to the usual block-type building of the United States) also influences the type of food service.

Among the most representative and largest of the hospitals that I visited were the Bispebjerg and Gentofte Hospitals in Denmark, the Rikshospitalet and Uvaal Hospitals in Norway, and the Southern and Karolinska Hospitals in Sweden.

The chief phases of food service studied were: (a) educational requirements of dietary professional staff, (b) the nutritional adequacies of the menus, (c) food production techniques, (d) techniques of personnel administration, and (e) the layout and standards of kitchen equipment.

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[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 17, 1947.

[2] The author was the recipient of an exchange scholarship offered by the Scandinavian-American Foundation. Under this scholarship, she was sent to the Scandinavian countries for ten weeks last summer to study the operation of dietary departments in Sweden, Norway, and Denmark. In this paper, she tells of some of her observations.

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PIONEER AND PACEMAKER—44 YEARS OF QUALITY

EDUCATIONAL REQUIREMENTS OF PROFESSIONAL STAFF

Because the universities of the Scandinavian countries have not yet included the applied science of home economics in their curricula, progress in developing a professional status in the field of dietetics has been slow. Several domestic science schools may be found in Scandinavia. Their courses vary in length from six months to two years, but very little instruction is given in institutional management techniques, advanced chemistry, nutrition, or diet in disease. Most of the professional staff in hospitals holding positions comparable to those held by our dietitians and assistant dietitians with regard to administrative responsibilities have had not more than two years of academic preparation beyond the equivalent of our high school level. All, however, eagerly desire further educational opportunities in this field, but these opportunities seem far distant in view of financial limitations within the University administrative staff and in view of the limited number of women who may be potentially engaged in dietetic work in Scandinavia.

NUTRITIONAL ADEQUACIES OF MENUS

The national food resources, of course, affect the menu of hospital patients and personnel. The Scandinavian countries today are, as are all other European countries, engaged in establishing a balanced economy as quickly as possible. Denmark is using her agricultural supply for export purposes in order to stimulate trade in other urgently needed products. Its food supply is, therefore, limited. Norway, not being such a largely agricultural nation and at the moment hampered by restrictions on the use of money for importing purposes, is also limited with regard to food. Superficial observations indicated a serious shortage of milk, eggs, citrus fruits, and green vegetables according to the nutritional standards currently prevailing in the United States.

No postwar nutritional surveys have been made of the Scandinavian countries. The critical financial condition in both Norway and Denmark prevents the expenditure of funds for nutritional surveys at present. It is also felt that the unstable and abnormally restricted food supply which should improve in a year or two would not warrant the expense of nutritional surveys made now, nor would they show consistent or representative evidence of the nutritional state of the nations surveyed. However, despite the lack of reliable information on nutritional status in these countries, there was a noticeable incidence of dental caries which has been the concern of nutritional research workers in Denmark and Norway for some time.

TECHNIQUES OF FOOD PRODUCTION AND SERVICE

Methods of large quantity cooking differ to some extent with ours. There is very little if any broiling of food. Most food is cooked in steam jacketed kettles and is either braised or boiled. Techniques which reduce vitamin and mineral losses, such as cooking vegetables in small quantities of water, protecting them from exposure to air, and elimination of soaking in water before cooking, are unknown to the Scandinavian dietary staffs. Very few studies, if any, have been conducted on meat shrinkage and vitamin and mineral losses due to improper food preparation. Lack of these techniques may be directly related to the very limited educational opportunities in the field of dietetics.

PERSONNEL ADMINISTRATION

Most of the personnel employed in hospital kitchens in Scandinavia are women. They comprise a fairly permanent labor force. Labor problems with regard to turnover and nationality differences cannot be compared with ours. Employee training is done on an apprenticeship basis, rather than as a formalized training program which is the current trend in this country. This, no doubt, may be attributed to the non-technical character of Scandinavian economy, for in hospitals in the United States we have borrowed techniques of personnel administration from our industrial and technological development which was greatly accelerated during the war.

EQUIPMENT AND LAYOUT

Both the standard and fabricated equipment found in most hospitals in Scandinavia are of good design and construction. There is a predominating use of stainless steel. Special features are stainless steel steamers and stainless steel roasting ovens recessed in the walls of kitchens. Tiltable fry tables adaptable to both deep fat frying and sauteing were frequently seen. Kitchens are spacious, airy, and well ventilated. Both gas and electricity are used as fuel. One special feature noted was the elevation of dietitians' offices within the kitchen, which provides an unrestricted view of the food preparation while at the same time giving privacy and quiet.

SUMMARY

In Scandinavia, the limited food supply and lack of educational opportunities for dietitians are in contradistinction to the up-to-date physical layout and equipment found in the newer hospitals.

I am quite sure that similar situations in varying degrees exist in other countries, also. Have we, as dietitians, a responsibility to our colleagues abroad? If so, what is it? I believe that, as a strong and vital professional group, we should help the workers in our field in other nations who have not enjoyed the advantages that we have had here. What specific contributions can we make at this time?

Medical doctors want our diet manuals; dietitians in hospitals want this JOURNAL; and domestic science

MORE READILY AVAILABLE ENERGY THAN ANY OTHER CEREAL

—AS POINTED OUT EDITORIALLY IN ARCHIVES OF PEDIATRICS—

The table below gives the same percentage figures as the article in Archives of Pediatrics, September issue. It shows that finely milled rice offers a *higher* total of carbohydrates, with a lower percentage of *in*digestible material, than any of 24 other leading-brand cereals tested.

It also shows, as brought out in the article, that "no other cereal has a protein and fat content high enough to offset this difference in terms of calories . . . Even *if* all possible protein and fat were to be transmuted into energy at the expense of the child's body structure . . ."

These facts become even more important in light of the facts previously known to pediatricians that (a) infants need more calories per kg. of body weight than adults, (b) they are less well equipped to handle much roughage, (c) they are less able to transmute proteins, fats, for use as energy, (d) they are quicker to suffer hypoglycemia to a harmful degree, (e) they should have optimum amounts of all essential elements in the diet *plus* 20-50% of carbohydrates for energy.

Assuming, of course, that no child's diet is likely to be limited to any one cereal, these facts may well incline you to agree with the article referred to, that such a finely milled rice can be expected to give *your* patients "more available caloric energy" in a form "more easily digestible" and therefore give "nutritional energy more rapidly."

WRITE FOR PROFESSIONAL SAMPLES:

GROCERY STORE PRODUCTS CO., 480 LEXINGTON AVE., NEW YORK 17, N. Y.

CARBOHYDRATES AVAILABLE AS ENERGY IN 25 CEREALS

(Actual brand names on professional request)

	TOTAL Carbohydrates	Crude Fiber (Cellulose Hemicellulose Lignin**)	Pentosans	Total UNAVAILABLE Carbohydrates	Total Carbohydrates AVAILABLE
1. Cream of Rice	80.97 %	0.42 %	1.72 %	2.14 %	78.83 %
2. Brand "A" corn flakes*	79.36	0.76	2.5	3.26	76.10
3. " "B" puffed rice	80.19	0.39	3.8	4.19	76.00
4. " "C" rice cereal*	77.51	0.46	2.8	3.26	74.25
5. " "D" wheat cereal	77.73	0.53	3.4	3.93	73.80
6. " "E" " "	75.97	0.52	3.4	3.92	72.05
7. " "F" " "	75.64	0.39	3.7	4.09	71.55
8. " "G" barley "	71.41	1.66	5.2	6.86	64.55
9. " "H" wheat "	72.88	2.23	7.4	9.63	63.25
10. " "I" malt "	72.29	2.64	6.5	9.14	63.15
11. " "J" baby "	68.89	1.59	4.9	6.49	62.40
12. " "K" wheat " *	70.47	2.47	7.5	9.97	60.50
13. " "L" baby "	66.23	1.08	4.7	5.78	60.45
14. " "M" oat "	65.97	1.72	3.9	5.62	60.35
15. " "N" wheat "	70.55	2.25	8.1	10.35	60.20
16. " "O" oat " *	65.79	2.99	3.4	6.39	59.40
17. " "P" baby "	64.07	1.47	3.5	4.97	59.10
18. " "Q" oat "	64.62	1.47	4.1	5.57	59.05
19. " "R" baby "	65.47	1.92	4.9	6.82	58.65
20. " "S" wheat "	68.45	2.60	7.9	10.50	57.95
21. " "T" baby "	63.85	1.70	4.2	5.90	57.95
22. " "U" " "	63.30	2.00	3.5	5.50	57.80
23. " "V" oat "	62.84	1.64	3.6	5.24	57.60
24. " "W" " " *	64.70	3.65	4.4	8.05	56.65
25. " "X" baby "	62.19	2.39	6.1	8.49	53.70

* The five cereals marked with an asterisk have added sugar (which incidentally, does not remain uniformly distributed throughout the package.)

** Cream of Rice has been specifically analyzed for lignin and contains none.

schools want our publications for their libraries, as well as university bulletins so that they may become better acquainted with our curricula. Educational foundations, such as the Swedish-American Foundation, the Norwegian-American Foundation, and the Danish-American Foundation, want all the guidance material that is available regarding our profession to aid them in guiding students coming to this country under their sponsorship.

I suggest, therefore, that we formulate a practical means of furnishing this information to those who are so urgently in need of it. Such service, along with a determined effort to increase our scholarship fund, would be a significant help to the workers in our field abroad and would materially aid us in strengthening our profession in an international sphere. It is indeed true that in helping others, we shall be immeasurably helping ourselves.

Psychological Factors in Mass Feeding

Very often it is easier to influence the psychological factors than it is to make gross changes to improve the quality of the meals. With this in mind, feeding conditions in the R.A.F. messes in England and about thirty countries overseas were studied. In the Autumn, 1947 issue of *Nutrition, Dietetics, Catering*, Macrae comments on observations made on the acceptability of food. Attitudes toward food were found to bear little relationship to either the actual quality of the meals or how they were presented.

However, general morale was found to have a profound effect. The most serious complaints were always encountered in regions remote from actual hostilities, for example, in the Persian Gulf area, in certain parts of India, West Africa, and the Sudan. On the whole, the personnel were discontented and critical; hence the food was often criticized quite unreasonably. On the other hand, when men were actively engaged in operations against the enemy, grumbles about food were less frequently encountered. This was particularly so in the Western Desert during the pursuit of Rommel. It was almost impossible to extract a grumble in spite of the fact that the feeding was, of necessity, poor.

The attitude toward food was also strikingly influenced by the interest shown in feeding by those responsible for supplying the meals and by the officers in general. At a particular station in Persia, the men were well satisfied, although the feeding was not good. This could only be attributed to the very great interest being shown by the officers. One particular senior officer was so keen to satisfy the men that he actually rolled up his sleeves in the cook-house in an effort to improve the food by devising new dishes and other means. A well educated airman, when questioned, admitted that the food really was not very good, but the men, knowing the effort which was being made, simply had not the heart to grumble. An instance in West Africa, where the feeding was not as good as it should have been, also demonstrated the importance of this psychological factor. When this station was first visited, more than 80 per cent of the men had serious grumbles concerning the quality of their meals. The Commanding Officer was requested to pay very particular attention to feeding, and especially to visit the men's messes at least once daily, to have other officers present at all other meals, and generally to impress on the men that he was doing his utmost to satisfy them. After one week, further questioning revealed that serious complaints on feeding had been reduced from 80 to approximately 20 per cent. It is of the greatest importance to make clear to the consumers of meals that a real effort is being made to satisfy them.

The offering of a choice of foods also had an important psychological effect. Not only was there more satisfaction among the personnel, but cooking staffs were happier also because of the increased satisfaction their meals were giving. When only two alternatives were offered, one of which was a cut from the joint, such as roast beef, and the other a made-up dish, such as shepherd's pie, there were generally only about 10 per cent who chose the made-up dish. When, however, two made-up dishes were offered, there was an "uptake" of about 20 per cent of each of the made-up dishes. The experienced caterer, by watching his made-up dishes, could influence the men so that he could regulate the choices so as to get rid of his leftovers and also maintain the free choice more or less to the end of serving time. Admittedly, he paid particular attention to the vegetables served; if he wanted a particular dish to go, he would serve it with chips.

Whether a person pays for his meal, or receives it free, has an important psychological effect on his appreciation of the food.

It was a common experience in the R.A.F. to find inferior food eaten and enjoyed in the various canteens, where the men had to pay for the food, whereas the meals served in the messes, which were usually superior in quality, were not appreciated. At a station in the Sudan, serious grumbles were encountered concerning the quality of a particular sausage in comparison with the "excellent sausages" found in a neighboring canteen. On investigation it was found that the sausages served in the mess and in the canteen were from the same source and were identical.—*From "Some Psychological Factors in Mass Feeding," by T. F. Macrae, O.B.E., D.Sc. In Nutrition, Dietetics, Catering, Autumn 1947, p. 104.*

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Heinz Condensed Soups in 51-oz. tins. Each tin serves twenty 5-oz., seventeen 6-oz. or fourteen 7-oz. portions. A number of popular and appetizing Heinz varieties that save time and labor are now available.

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Book Reviews

Infant Nutrition. By P. C. Jeans, M.D., and Williams McKim Marriott, M.D. 4th ed. St. Louis: C. V. Mosby Company, 1947. Cloth. Pp. 516. Price $6.50.

The late Dr. Marriott in the preface to the first edition of *Infant Nutrition* states: "It is the purpose of this book to summarize present-day knowledge concerning the nutritional requirements of infants under normal and pathological conditions and to indicate the effects of failure to meet any or all of these requirements." The authors felt that, in order to plan a successful regime of infant feeding, the practitioner must have not only a thorough knowledge of the nutritional requirements of an infant but a knowledge of normal growth and development as well. The selection of a food to meet the nutritional requirements should be "based on an understanding of the characteristics of the chief food elements and the processes of digestion and absorption in infancy as well as alterations of the processes which are likely to occur under abnormal conditions."

To carry out these objectives, chapters are included which would give the practitioner and student this basic knowledge. The book is divided into three main sections. One is a discussion of growth and development, the metabolism of the various food elements, and the nutritional requirements of infants. The second deals with ways by which an infant can be successfully fed both by breast and artificial feeding. The last section consists of a discussion of gastro-intestinal disturbances which may alter any plan of feeding.

This is the fourth edition and by incorporating the newer knowledge of nutrition which is applicable to infant nutrition, the text remains a practical guide for anyone concerned with the feeding of infants. All parts of the book have been brought up to date either by revision or rewriting. The influence that the prenatal diet of the mother may have on the fetus is discussed. Phases of vitamin research, such as the isolation of the newer members of the B-complex and the role of intestinal bacteria in the synthesis of vitamins, are included.

As in the previous edition, although schedules and outlines are discussed in detail, the point is made that they are only rough guides which merely indicate what an average baby may be expected to take and that the formula should be suited to the infant. Many pediatricians today are recommending that solid foods be added to the infant's diet at an earlier age than has been practiced in the past. Dr. Jeans still suggests that a suitable age for including egg yolk is between three and four months, vegetables between four and five months, fruits between five and six months, cereals between six and seven months, and that meat when "appropriately prepared may be fed at any age."

New charts and pictures, particularly in the chapter on techniques, have been added. Since the publication of the third edition, chemotherapy has become widespread in the treatment of various diseases and the use of the sulfonamide drugs is considered in the chapters on diarrhea and bacillary dysentery. The chapter on celiac disease has been enlarged to include cystic fibrosis of the pancreas and is now called the celiac syndrome. Throughout the book statements and facts have been changed wherever necessary to incorporate facts as they are known today. The text continues to be a useful and complete guide in the problem of feeding infants.—*Lorraine G. Weng, University of Chicago Clinics.*

A Book for Us Diabetics and Our Doctors. By Don H. Duffie, M.D. 5th ed. Central Lake, Michigan: The author, 1946. Cloth. Pp. 100. Price $2.25

In the Foreword to the first edition, Dr. L. H. Newburgh has commented that Dr. Duffie "has shown himself possessed of two great qualities—a rare sense of humor and the ability to give all the information needed by the patient, in simple language free from difficult technicalities."

The book will have the greatest usefulness for those patients whose physicians aim to keep the urine sugar-free and who feel that "to get results and play safe, insulin must be used with a carefully weighed diet in such a way as to keep the patient sugar-free."

A uniform starting menu for adults is outlined containing: carbohydrate, 148 gm.; protein, 70 gm.; and fat, 87 gm. Substitutions and interchanges in the menu are to be made in terms of red and blue points. The author explains this as follows: "Thanks to their troubles with ration points, red and blue, during the late war, many a housewife loathe to bother her head with arithmetic problems in the diet, can readily think in terms of red and blue points. I am therefore glad to steal from Dr. Woodyatt (with his indulgent consent!) the idea of rationing the patient in points, letting him spend his coupons pretty much—but not altogether—as he likes. . . . As used here, one red point 'buys' 6 gm. of protein which may be used instead of one egg—one 'red point.'" A blue point buys approximately 4 gm. of carbohydrate. One-point quantities, both red and blue, of many other foods are given in tables at the back of the book.

Community Clinics. By Loretta I. Bigley, R.N. Philadelphia: J. B. Lippincott Company, 1947. Cloth. Pp. 276. Price $4.

The author, with some twenty years' experience in regional and out-patient clinics, has written a book dealing with the organization and general operation of the out-patient clinic. Three primary questions concerning clinics are considered: (a) What factors should be considered in planning, equipping, and operating a clinic? (b) Who attends a clinic and why? How is eligibility determined? (c) In what way may the general clinic provide opportunity for the education of patients, the general public, and the professional staffs?

The book itself is divided into three parts, the first dealing with the general organization and operation of out-patient clinics and related services, the second covering the classification, grouping, equipment, and setting up of the various individual services within a clinic, and the third discussing the educational values of the out-patient clinic to the patient and the community.

The subject of nutrition is mentioned in one brief, two-page chapter in the first section of the book on organization. Although the clinic nutritionist's role as an educator is mentioned, it is not given emphasis. In fact, the very

Morning Moods... by KEN RUKER

All aglow

about a luncheon date with that fascinating new man?

Don't forget

you have to work all morning first! Stoke up on a good breakfast! Don't spoil your sparkle by "midmorning let-down"!

HERE'S A BASIC BREAKFAST

FRUIT CEREAL MILK BREAD & BUTTER (OR FORTIFIED MARGARINE)

...to help a girl "sparkle" all day!

POST'S CORN TOASTIES!

A GENEROUS BOWLFUL* of Corn Toasties with milk and sugar supplies 210 calories and 10% of the protein** required daily by an adult! 20% of the calcium...5.6% of the iron... 17% of the thiamine...and 4% of the niacin!**

* Corn Toasties (1 oz.), milk (4 oz.), sugar (1 tsp.)
** Protein based on 70 g., niacin based on 15 mg.

P.S. EVERY POST CEREAL is either WHOLE GRAIN or restored to WHOLE GRAIN VALUES in the important nutrients: iron, niacin, and thiamine.

POST CEREALS ARE PRODUCTS OF GENERAL FOODS

brevity of the chapter on nutrition seems to emphasize the lack of understanding by the author of the food clinic dietitian's training and potential contributions to the outpatient organization.

The book is being promoted as a textbook for advanced nursing courses. Nevertheless, it can serve in an informational role to the dietitian interested in learning about overall clinic operation.

The Ranks of Death. By P. M. Ashburn. New York: Coward-McCann, Inc., 1947. Cloth. Pp. 298. Price $5.

Subtitled "A Medical History of the Conquest of America," this is an interestingly written book of the influence of diseases on the conquest and colonization of America. It is a scholarly work based on years of reading and historical research, yet the prose is so lucid and flowing that the reader with small interest in either medicine or history is carried along with ease. The three appendices contain detailed reference material so that both the casual reader and the scholar will find much in this book.

The author recounts the effect on the Indians of diseases new to the Americas and the influence of these diseases on the successes and failures of the conquest. He discusses the arguments for the origin of syphilis in the Americas or in Europe or Africa. There are chapters on malaria, yellow fever, and other infectious diseases.

For the nutritionist, the most interesting chapter is on famine and scurvy. Here the author shows that the chief risk to the adventurer to the New World in the sixteenth or seventeenth century was in obtaining food sufficient in quality and quantity. Compared to this, the risk of death from the Indians or in uncharted country was minor.

The book has been ably edited by the author's son, Frank P. Ashburn. Its chief fault lies in the paragraphs at the beginning of most chapters which were written by the editor and intended as "bridges." Instead they are abstracts of the coming chapter and, for this reader at least, took the edge off the real work.—*Lillian H. Meyer, Western Michigan College of Education, Kalamazoo, Michigan.*

Estimation of the Vitamins. Vol. XII of *Biological Symposia.* Edited by W. J. Dann and G. Howard Satterfield. Lancaster, Pa.: The Jacques Cattell Press, 1947. Cloth. Pp. 531. Price $6.50.

This book constitutes an excellent summary of the methods for estimation of the vitamins. It consists of a series of chapters on the subdivisions into which the methods logically fall, i.e., biological, microbiological, physicochemical, and chemical. Each chapter is written by an authority in the field, and although the book is a symposium of articles from more than thirty authors, there are singularly few repetitions. In general each author presents a review of the literature on methods of estimation and gives details of one method considered by him as the method of choice in that particular area.

Readers will find this a valuable reference book rather than a text book or a laboratory manual. Because of the magnitude of the undertaking, it seems impossible to include the very latest information in this fast-moving field of investigation. The references at the end of each chapter, extensive as they are, list very few articles published more recently than two years ago. The book contains no index, but this is no great omission; the table of contents should be sufficient guide for the average reader.—*Alice M. Briant, Associate Professor of Food and Nutrition, New York State College of Home Economics, Cornell University, Ithaca, New York.*

Cooking Procedures and Food Poisoning

One of the ranking problems in food sanitation is the incidence of staphylococcal intoxication. A study has been made of the thermal death time-temperature relationships for one strain of Staphylococcus in cream filling. In addition, these findings have been correlated with the range and duration of temperatures attained in accepted cooking procedures for cream filling. It was found that a strain of *Staphylococcus aureus* could survive for 30 min. at 55°C., but it could be destroyed in less than 3 min. of heating at 85°C. Cream fillings made by this latter method can be assumed to be free from viable Staphylococcus.—*From a paper by D. L. Hussemann and F. W. Tanner in the American Journal of Public Health 37: 1407 (November), 1947.*

Developments in Sterilizing Food

Bacteria that cause food to spoil can be destroyed in a few seconds by high-frequency radio waves which generate sudden heat, according to a report of Dr. Frank J. Yourga, chief food technologist of the Hartford-Empire Company, Hartford, Connecticut. Speaking before the Connecticut Valley Section of the American Chemical Society recently, Dr. Yourga stated that the use of radar for sterilizing food eliminates part of the risk of over-exposure now present when canned foods are immersed in steam or hot water for sterilizing purposes. However, he pointed out, that scientists will need to develop a way to make the contents of a container uniform, if radar is to be used for this purpose.

The use of intense radiation produced by atomic fission for destroying bacteria in foods and for preserving foods for long periods is also a possibility, according to New York State Senator Thomas C. Desmond. In an introduction to *Meals for Many*, the Final Report of the New York State Joint Legislative Committee on Nutrition for 1947, Senator Desmond states that already investigations are underway in this field.

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TODAY, as never before, your frying fat must prove its worth. It must turn out the maximum in good-eating fried foods—and do it economically.

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THE SHORTENING THAT SETS THE QUALITY STANDARD

Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital; Marian T. Straube, University of Chicago Clinics; Mrs. Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; and the Journal staff.

THE AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 14, September, 1947

Certification of death of 1,000 diabetic patients. H. L. Lombard and E. P. Joslin.—p. 275.

* Moderate fats in infectious hepatitis: a new concept based on recent advances. N. E. Reich, D. L. Swartz, and P. Beckman.—p. 281.

Vol. 14, November, 1947

Metabolism of sucrose. I. M. Rabinowitch and M. Mountford.—p. 315.

* A system of diabetic diet prescription for the general practitioner. C. P. Lamar.—p. 323.

Fat in Infectious Hepatitis. The role of carbohydrates, proteins, and fats in the treatment of infectious hepatitis is explained. Evidence is presented that in infectious hepatitis, fatty changes in the liver, such as are characteristically seen in yellow atrophies due to chemical poisons, bacterial toxins, yellow fever, or eclampsia, do not occur; therefore, fat restriction is not important, therapeutically speaking. Some advantages presented for moderate fat in the diet (up to 200 gm. daily) include: (a) Increased fats afford a higher caloric intake in more concentrated form with less bulk and moisture content. (b) The fat-soluble vitamins are supplied in sufficient quantity, thus minimizing the need for supplementary vitamin therapy. (c) The diet is more palatable and the morale of the patient is improved. The arguments in support of a moderate-fat diet are not meant to preclude the importance of continuing a diet high in carbohydrates and proteins. Two lists are included, one for a fat-free diet and the other for a high-protein, moderate-fat regime.

Diabetic Diets. The existing need for the simplification in the methods of diabetic diet calculation and instruction is stressed in this article. Four prescribed diets of 1004 calories, 1188 calories, 1542 calories, and 1869 calories are included. The meal plan is explained in regard to the size of servings of fruits, vegetables, meats, cereals, protein foods, and substitutions.

THE AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 150, October, 1947

* Effects of vitamin imbalance under conditions of ad libitum feeding and reduced caloric intake. V. H. Brunish, H. B. McWilliams, G. D. Mason, A. D. Adams, Jr., and B. H. Ershoff.—p. 551.

Effects of Vitamin Imbalance. The suggestion has been made that adverse effects of vitamin imbalance might be demonstrated only under conditions of stress. This study was undertaken to compare the effects of unbalanced dosing on animals fed *ad libitum* and under the stress of reduced caloric intake. Purified rations and similar diets containing massive supplements of thiamine hydrochloride, riboflavin, and niacin, the three vitamins employed in the flour enrichment program, were fed to rats. Under the conditions of *ad libitum* feeding, no significant difference in gross appearance, red blood cell count, hemoglobin levels, or total white blood cell counts was observed between animals fed control diets and those fed similar rations containing the thiamine, riboflavin, and niacin supplements. The latter group, however, gained less weight, had a lower basal metabolism, and a higher granulocyte count than animals fed only the control rations. When the rats were maintained on a caloric restriction of 50 per cent, no significant difference was observed between animals fed control diets and those fed similar rations containing the vitamin supplement. It was concluded that under the conditions of this experiment vitamin imbalance did not result in adverse effects.

ARCHIVES OF PEDIATRICS

Vol. 64, October, 1947

Management of infantile eczema at the Los Angeles county hospital; a three year study. L. Z. Wolpe.—p. 520.

* A simple method for calculating formulae in infant feeding. H. Jacobziner.—p. 539.

Calculating Formulas for Infant Feeding. The method described has been employed by the author for ten years. It is applicable for feeding of healthy infants during the age when artificial feeding is employed. Requiring only the simplest form of mental arithmetic, the procedure is time-saving and accurate. The differences in figuring, due to the use of cow's milk or evaporated milk are pointed out, and a few examples are given.

BRITISH MEDICAL JOURNAL

No. 4529, October 25, 1947

* Some problems of tropical sprue. D.A.K. Black and L.P.R. Fourman.—p. 645.

Breast-feeding in erythroblastosis foetalis. I.A.B. Cathie.—p. 650.

No. 4530, November 1, 1947

* Vitamin K for the relief of chilblains. D. P. Wheatley.—p. 689.

Tropical Sprue. The aim of this investigation was to collect data on fat absorption in early cases of sprue and to observe how the absorption might be affected by different forms of treatment. Three methods were used in studying fat absorption: chylomicron counts, serum lipid curves, and fat-balance experiments. The latter method gave the most satisfactory results. It was found that normal people, on a mixed diet containing 50 to 100 gm. fat per day, absorbed over 90 per cent of dietary fat; patients with sprue absorbed from 50 to 85 per cent.

Yeast extract in large doses was found to have a favorable effect on fat absorption, and it was more convenient for the patient than frequent injections of crude liver extract. A number of patients with sprue became acutely ill, with salt-deficiency dehydration associated with watery diarrhea; in such patients the diarrhea was best controlled with sulphaguanidine and parenteral liver injections. Their diet should also be supplemented with moderate amounts of salt.

In addition to the fat-absorption studies, observations were made on the absorption of non-fatty substances in

BY Mary I. Barber OF KELLOGG'S

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Director, Home Economics Department
Kellogg Company
Battle Creek, Michigan

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Kellogg's EXTEND MEAT PATTIES WITH KELLOGG'S CORN FLAKES

Save 8 pounds of meat on each 100 servings of meat patties by the addition of Kellogg's Corn Flakes.

Cut down expense and extend the number of servings. Order 17 pounds of ground meat for each 100 servings. To the 17 pounds of meat, add 8½ quarts (1 pound 10 ounces) of Kellogg's Corn Flakes and form into 100 large patties.

See reverse side of card for illustration showing 1 pound of ground meat and 2 cups of Kellogg's Corn Flakes—6 patties instead of 4.

patients with sprue. The evidence suggests a general impairment of absorption. By using indirect methods, the impaired absorption of glucose, iron, sodium, and chloride was confirmed.

Vitamin K and Chilblains. Eight cases of chilblains, ranging from the mildest manifestation to severe and ulcerated forms, were treated with vitamin K. In four cases there was complete alleviation of symptoms. In the other four there was definite improvement; however, one of the individuals had a recurrence of symptoms in spite of continued treatment.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 57, October, 1947

Iodine deficiency disease. W. N. Kemp.—p. 330.

Iodine Deficiency. The author stresses the need for physicians to become more aware of the lessons taught by veterinary science. One example is the careful study which has been made of iodine deficiency disease among livestock in North America. Much of the data which has been collected can be applied to humans. In this connection the author gives a report of a clinical study made from birth statistics in Vancouver, which is located in the Pacific Northwest goiter belt. He emphasizes that dietary iodine deficiency is probably a potent influence on the incidence of stillbirth and early neonatal death in humans inhabiting a goitrous area.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 135, November 22, 1947

* White bread and epilepsy in animals. M. L. Silver, R. E. Johnson, R. M. Kark, J. R. Klein, E. P. Monahan, and S. S. Zevin.—p. 757.
* Role of "Agenized" flour in the production of running fits. G. W. Newell, T. C. Erickson, W. E. Gilson, S. N. Gershoff, and C. A. Elvehjem.—p. 760.

Vol. 135, December 6, 1947

* The advisability of breast feeding. C. A. Aldrich.—p. 915.

Poisoning due to ingestion of wax crayons. E. B. Clark.—p. 917.

Vol. 135, December 13, 1947

Health among the Navajo Indians. O. T. Woods.—p. 981.

White Bread and Epilepsy. Treating flour with chemical agents (the "Agene" process) is a widespread commercial practice. There are several advantages to using this "bleached" or "improved" flour: (a) It enables bakers to produce better bread. (b) It allows millers to use any supply of sound wheat for the production of flour with uniform properties. (c) It is a means of preventing the waste and spoilage which occurs when flour is aged naturally during storage.

Approximately 90 per cent of all the white wheat flour milled in North America and England has been treated with one of these chemical agents, nitrogen trichloride. Experiments have shown that dogs given a diet containing bread made from this flour develop epilepsy and other neurologic disorders. In this paper the effects of "Agenized" flour on monkeys, dogs, cats, and rats are described. Fractionation of the treated flour showed that convulsive activity was retained in the protein fraction alone. These findings are significant. The possibility that a toxic substance is being offered in a universal and staple article of diet makes it imperative that careful investigation of the wholesomeness and suitability of all processed foods be made.

"Agenized" Flour. This study also demonstrates the effect of bleached flour on dogs. In addition to describing the experiments on animals, the authors report a preliminary experiment on human beings. Observations were carried on for periods of two to four weeks. There were no changes in the electroencephalographic patterns; neither were there any abnormal clinical symptoms.

Breast Feeding. A survey of the Subcommittee of the Committee on Maternal and Child Feeding, National Research Council, is presented. The report deals with the advantages of breast milk as a specific food for infants; the advantages of breast feeding as a technique in child care; and the objections and contraindications to breast feeding.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 171, November, 1947

* The influence of dietary protein, methionine, and cystine on accelerated vitamin C excretion in the rat. E. Roberts and C. J. Spiegl.—p. 9.

The effect of some amino acids on the growth and nicotinic acid storage of rats on low casein diets. S. A. Singal, V. P. Sydenstricker, and J. M. Littlejohn.—p. 203.

* The histidine content of meat. C. M. Lyman, K. A. Kuiken, and F. Hale.—p. 233.

Dietary Protein and Vitamin C Excretion. The ability of the rat to synthesize ascorbic acid has been known for some time, and subsequent experiments have shown that certain organic compounds stimulate the synthesis. The effects of altering the dietary level of protein on the responses to sodium phenobarbital and chloretone, two of the most potent stimulating agents, were studied. Of the ten essential amino acids studied, only cystine and methionine showed marked accelerating effect on ascorbic acid when the rats were fed phenobarbital. Methionine had no effect on ascorbic acid excretion in the absence of a stimulating agent. The addition of methionine to a milk diet supporting a high level of ascorbic acid excretion depressed the excretion. This suggests that cystine and methionine probably do not act as direct precursors of ascorbic acid in the rat, and the accelerating influence on ascorbic acid excretion is due to the general effects of adding amino acids to a low-protein diet.

Histidine in Meat. Previous investigations have suggested that the composition of the protein tissue structure is essentially the same in beef, pork, and lamb. However, on further observation it became apparent that there was a very significant difference in the histidine content of beef and lamb muscle tissue. There was also much less uniformity in the histidine content of different samples of the same kind of muscle tissue than there had been in the case of the amino acids previously studied. Such differences can be accounted for if a substantial part of the histamine content of muscle tissue is in some form other than protein. This study gives evidence that carnosine is related to the determination of the total histidine content of meat. A microbiological method for the determination of histidine in meat and other food materials is described. The advantage of this method is explained by the fact that the carnosine content is retained. (Methods used in other investigations resulted in the loss of most of the carnosine.) Results indicated that, with the exception of skeletal muscle tissue, there was no substantial difference in the histidine content of the same kind of tissue from beef, pork, and lamb. Organs, such as kidney, liver, and heart, all had about the same histidine content.

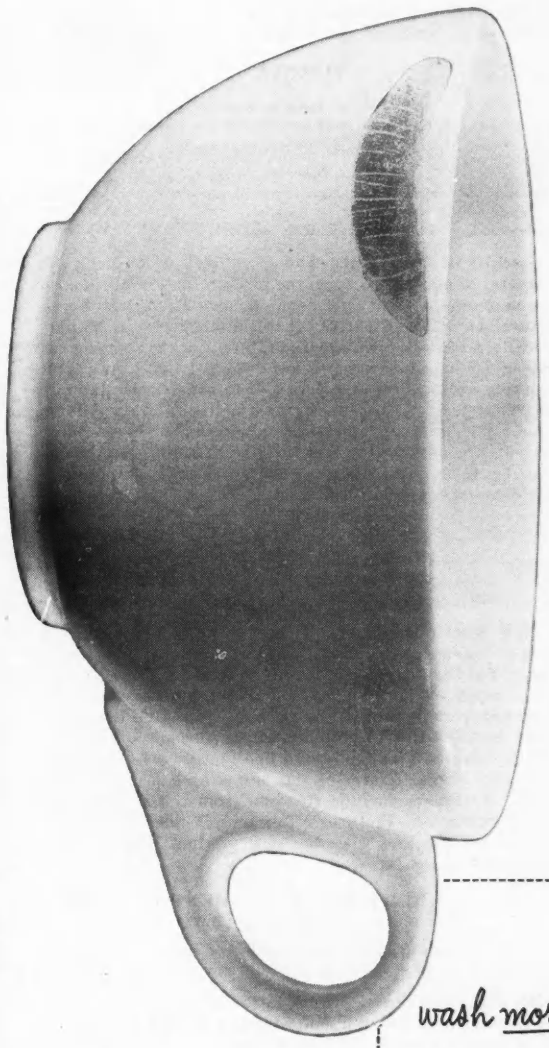
THE JOURNAL OF NUTRITION

Vol. 34, November, 1947

* Self selection of diet. VI. The nature of appetites for B vitamins. E. M. Scott and E. L. Verney.—p. 471.
* A comparison of the utilization and acceptability of fresh and dehydrated food. H. J. Deuel and R. M. Johnson.—p. 507.
* The thiamine and riboflavin content of whole wheat, nonenriched and enriched flours and of breads made therefrom. N. B. Guerrant and D. B. Fardig.—p. 523.

The effect of fat level of the diet on general nutrition. IV. The comparative composition of rats in relation to intake of fat and calories. B. T. Scheer, E. Straub, M. Fields, E. R. Meserve, C. Hendrick, and H. J. Deuel.—p. 581.

Studies on the concentration of some B-vitamins in the blood of normal and cobalt deficient sheep. S. N. Ray, W. C. Weir, A. L. Pope, and P. H. Phillips.—p. 595.



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2. Strong alkalis cut lipstick . . . but they cannot remove dangerous, unpleasant washing film *nor the filth imbedded* in it. Absence of lipstick does not prove a cup or glass is *clean* . . . but its presence certainly proves the cup or glass is *dirty*—all over.

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**T. M. Reg. U. S. Pat. Off.*

†*Calgon is the registered trademark of Calgon, Inc. for its vitreous sodium phosphate.*

Self-Selection of Diet. Previous studies on rats have suggested that appetites for thiamine, riboflavin, or pyridoxine are related to nutritional need for them. This report outlines a method of determining whether such appetites are learned or whether they represent true hunger. Deficient animals were allowed a choice of two diets of distinctly different flavors; one contained a vitamin supplement and the other did not. After a few days the vitamin was placed in the diet that previously had contained none. There was a significant tendency for these animals to eat more of the diet of that flavor originally associated with the vitamin. Such behavior would seem to indicate an association by the animals of some deficiency-relieving quality of the vitamin with flavor or lack of it. It may be concluded, then, that appetites for thiamine, riboflavin, and pyridoxine appear to be learned appetites.

Acceptability of Fresh and Dehydrated Foods. This study was made in order to determine whether dehydrated foods had the same nutritive value as fresh foods and to observe how the acceptability of dehydrated foods compared with that of fresh foods. Eight male subjects participated in the prolonged feeding tests. Diets prepared from dehydrated products seemed to have as high a degree of acceptability as those made from fresh foods. Furthermore, the dehydrated foods compared satisfactorily with fresh foods in regard to nutritional value.

Thiamine and Riboflavin Content of Bread Flours. Rats were used in a study to determine the relative thiamine and riboflavin content of whole wheat, non-enriched, and enriched flour, and of breads made therefrom. The results, as a whole, showed that flour enriched in accordance with the present formula is definitely superior to non-enriched flour and somewhat superior to whole wheat with respect to thiamine and riboflavin. Breads made from ground wheat and enriched flour showed good retention of thiamine and riboflavin as indicated by growth tests and vitamin assays.

SCIENCE

Vol. 106, December 5, 1947

Antibacterial action of inactivated ergosterol in the guinea pig and man. W. Raab.—p. 546.

Vol. 106, December 12, 1947

Is the action of calcium in the coagulation of blood stoichiometric or catalytic? A. J. Quick.—p. 591.

* Male sterility in the carrot. J. E. Welch and E. L. Grimball, Jr.—p. 594.

Sterility in the Carrot. The possibility of utilizing the character of male sterility in the production of hybrid seed for commercial planting has been suggested. Present horticultural varieties of carrots lack uniformity. It is theoretically possible, by employing inbred lines possessing the male-sterile character, to obtain extremely uniform carrot varieties which are also superior to those now available in general appearance, productivity, quality, and nutritional value. Breeding tests, made on apparently male-sterile carrots, are reported. Additional tests are required in order to understand the mode of inheritance of the male-sterile character.

BAKERS' HELPER

Vol. 88, October 4, 1947

Why and how National Biscuit Company established a suggestion system. H. J. Rickey.—p. 38.

* Frozen dough and frozen baked products. I. W. E. Broeg.—p. 72.

Vol. 88, October 18, 1947

* Frozen dough and frozen baked products. II. W. E. Broeg.—p. 47.

Frozen Baked Products. I. The freezing of baked products will become an important process in the future. First, however, certain obstacles must be overcome. Distribution costs of frozen goods are higher than those for ready-to-eat baked goods, due to the use of expensive materials, elaborate plants, and highly skilled labor. In order to obtain satisfactory products, recipes must be adaptable for freezing, and the kind and amount of ingredients must be determined. Proper packaging is essential, too, for dehydration can result in loss of quality.

Frozen Baked Products. II. Surface dehydration of frozen and baked products decreases quality. Procedures which will help to prevent dehydration are as follows: (a) wrapping before freezing; (b) surface spraying with combinations of water, oil, fat, or milk; and (c) specialty glazing with water or crunch toppings. The best types of containers for packaging frozen goods include waxed, lacquered, or laminated board sealed with moisture-proof glue; or heat-sealed boxes. Frozen products may be held for longer periods of time if oxidation is retarded or prevented. Ingredients which help to retard oxidation are carbon dioxide, sugar, cultured butter, and culturized potato ferment.

FOOD INDUSTRIES

Vol. 19, December, 1947

Instant mashed potatoes from dehydrated granules. J. W. Greene, G. C. Marburger, and F. A. Rohrman.—p. 86.

* Many uses for new stabilizer. P. A. Deutsch.—p. 112.

New Starch Stabilizer. This product, which is refined from a domestic waxy maize and resembles ordinary cornstarch, has been developed for use in fruit pie fillings, caramels, fudges, nougats and marshmallow, chop suey bases for chow mein, cream sauces, and gravies. It should be particularly useful in the frozen food industry because of its ability to recover original body and fine texture after freezing. The main characteristic of the new starch is its clarity. Other advantages include freedom from cereal taste and from gumminess. Pictures of cherry pie made with ordinary cornstarch and with the new product illustrate the superiority of the latter.

HOSPITAL MANAGEMENT

Vol. 64, November, 1947

How to protect hospital patients against nutritional hazards.—p. 96.

* How to keep control of costs in hospital food service.—p. 106.

Hospital Food Costs. Illustrations are given of account and record forms which have proved to be effective aids in the control of costs in feeding operations. Directions are included for filling out the following forms: cash journal, petty cash voucher, cashier's report, purchase record, and inventory record.

HOSPITALS

Vol. 21, December, 1947

A search for standards; formula room gets committee attention. M. Gillam.—p. 43.

* Cooperative planning for efficient equipment upkeep. L. J. Mamer.—p. 69.

Equipment Upkeep. Proper maintenance of food equipment is the responsibility of the engineering department. However, close cooperation between the dietary and engineering departments is necessary if all equipment is to be kept in good operating order. The author, who is Chief Engineer at Evanston Hospital, Evanston, Illinois, tells of

CHIQUITA BANANA SAYS:

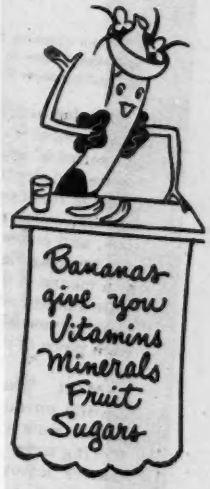
For two great foods in one

BANANA MILK SHAKE

Easy to make

For milk shakes—bananas fully ripe flecked with brown.

Easy to take



Good to drink

How to make BANANA MILK SHAKE

1 fully ripe banana **1 cup (8 oz.) COLD milk**

Peel banana. Slice or break into container of an electric mixer. Add milk and mix until creamy. Serve immediately. Makes 1 large drink (10 to 12 ounces) or 2 medium-sized drinks (5 to 6 ounces each).

When using a mixer which does not cut up and crush fruit, mash the banana before placing into container of mixer.

For a COLDER drink: Add about 2 tablespoons of crushed ice before mixing.

For a RICHER, SWEETER drink: Add about 2 tablespoons of ice cream before mixing.

Banana Milk Shake separates when allowed to stand...therefore serve immediately.

Banana Milk Shake is a "pep restorer"...good for everyone. It is of special value in post-operative and convalescent diets. The Banana Milk Shake contains approximately 260 calories.

VARIATIONS

Banana Egg Nog: Before mixing Banana Milk Shake, add 1 egg.

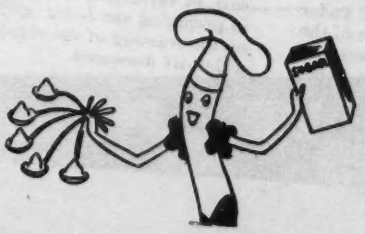
Banana Malted Milk Shake: Before mixing Banana Milk Shake, add 2 to 3 tablespoons (½ to ¾ ounce) malted milk powder.

Banana Chocolate Milk Shake: Before mixing Banana Milk Shake, add 1 to 4 tablespoons (½ to 2 ounces) chocolate syrup.

USE FULLY RIPE BANANAS ... PEEL WELL FLECKED WITH BROWN

Home Economics Dept., UNITED FRUIT COMPANY, Pier 3, N. R., New York 6, N. Y.

...and don't forget—teaspoons of fruit sugar in every ripe banana



For bland diets, fruit diets, high carbohydrate diets—Bananas

the various ways in which the engineer can assist the dietitian. He also describes a filing system on equipment and suggests how a satisfactory maintenance schedule can be established.

HOTEL MANAGEMENT

Vol. 52, October, 1947

* The many uses for mono sodium glutamate. S. James.—p. 52.
* Principles of kitchen layout. A. W. Dana.—p. 58.
Modern fashions in breakfast. M. Casteen.—p. 60.

Mono Sodium Glutamate. This vegetable protein derivative is a cooking aid which is receiving more and more attention. Its outstanding characteristic is that of retaining and intensifying natural food flavors. Usually made from wheat, beets, or soy beans, the pure product has a definite place in the preparation of soups, fish chowders, meat dishes, eggs, cheese, vegetables, and salads. Because of its ability to intensify flavor, certain economies are possible—the amount of seasonings and other flavoring devices should be decreased. In explaining the use of mono sodium glutamate, the author includes several quantity recipes which incorporate the product.

Storage Space. This article, the sixth in a series on the foremost fundamentals of modern kitchen planning, deals with allocation of storage space. Data obtained from a survey made by Horwath and Horwath is presented. The approximate distribution of storage space is related to food sales. Charts and detailed directions for figuring storage space are given.

INSTITUTIONS MAGAZINE

Vol. 21, October, 1947

Historic records not satisfactory as buying guides.—p. 53.
* List developments in heavy duty food service equipment.—p. 84.

Vol. 21, November, 1947

* Chart for checking equipment reduces maintenance time.—p. 3.
* Refresher course in meat buying, storage, service.—p. 18.
Dishwashing more thorough with use of new detergents.—p. 88.

Developments in Food Service Equipment. This discussion of recent improvements in fixed equipment is the second in a series of articles by S. Blickman. Particular attention is given to electronic ovens, stock kettles, steam table tops, garbage disposal units, silver washers and dryers, electric cutters, water softeners, gauze filters for hoods, refrigeration, and coffee urns.

Checking Equipment. The advantages of a check chart as a means of developing an adequate system of equipment maintenance are pointed out. A sample chart is included which gives definite instructions for the service required by each piece of equipment and tells how often such service is required.

Meat. The American Meat Institute offers basic information on making meat go further and utilizing the less tender cuts of meat. Specific directions for buying and storing meat are included. Attention is also given to the use of leftovers. Economy dishes containing meat are suggested.

THE MODERN HOSPITAL

Vol. 69, December, 1947

* Maternity hospital has a better formula for infant feeding. E. Ross.—p. 65.
* Sound consultation leads to better service. F. J. Bracken.—p. 100.

Infant Feeding. For approximately one year the formula room at St. Louis Maternity Hospital has been under the direction of the dietary department. The duties of the formula room personnel, which includes one staff dietitian, are outlined and the method of filling the formulas is described. The procedure involves a surgically clean technique involving the application of nipples and protective covering and final autoclaving, which has replaced water sterilization.

The Dietitian as Consultant. Dietary consultation is often needed by small institutions. However, the directors of such institutions must realize the need for advice before consultation can be effective. The experiences of the Maryland Dietetic Association in offering a consultation service to child care institutions are described. The conclusions reached as a result of these experiences have helped the author to point out the methods by which a dietitian can give the greatest assistance to those seeking her advice on food service and nutritional problems. The institution's part in the consultation service is also summarized.

RESTAURANT MANAGEMENT

Vol. 61, October, 1947

Planning a new restaurant to meet community standards. J. Hager.—p. 31.
Assuring maximum returns when receiving food.—p. 46.
* Principles of kitchen layout. A. W. Dana.—p. 49.
Profit plates. A. Easton.—p. 55.

Kitchen Layout. There are seven rudimentary rules or principles of layout that apply to all kitchens. These rules are: (a) adequate work table space, (b) reasonable proximity of work table space to cooking equipment, (c) adequate working aisle space, (d) clearly defined main traffic lines, (e) separation of widely differing cooking and preparation functions, (f) location and arrangement of equipment as near the point of distribution as possible, and (g) the location of equipment units in positions of maximum convenience and minimum interference from kitchen employees. Definite suggestions are made for placement of equipment in straight line, L-shaped, parallel, and combination layouts. The advantages of the parallel arrangement are pointed out.

WHAT'S NEW IN HOME ECONOMICS

Vol. 12, October, 1947

Meat is prepared for the market. D. E. Shank.—p. 68.
* Lunch programs in small suburban schools. M. S. Plewes.—p. 110.

Vol. 12, November, 1947

Teaching foods to students. E. Stewart.—p. 38.
How modern cereals are made.—p. 56.
Planning food for the small family. E. A. Wood.—p. 60.
* This business of food handling. L. Dodson.—p. 125.
* Let's talk about menus. W. S. Pendergast.—p. 127.

Lunch in Suburban Schools. A recent survey has shown that the smallest schools have the smallest percentage of children receiving lunches. In view of this fact the school lunch programs in the small suburban communities of Delaware County, Pennsylvania, were investigated. Questionnaires were sent to 119 schools—one type to schools having no lunch program and another type to those having lunch programs. Eighty-four replies were received, and the results are reported in this article. Points of interest are the type of food service offered, physical facilities, management policies, the number of employees, operating expenses, and school and community interest shown. A number of recommendations have been made as a result of the study, and these are enumerated.

Menu Planning. Valuable hints on menu planning are given in this discussion directed to school lunchroom managers. Orderly surroundings and the necessity for planning menus when you are hungry are just examples of the practical suggestions which are made. Consideration of the cost, of variety, of serving motions, of the division of work in preparing the foods, and the advantage of taking notes on the reaction of the children to the menus are other aids which are discussed.

Q: Is there a whole wheat cereal extra rich in thiamine?

A: Yes... Hot Ralston Whole Wheat Cereal!

Extra thiamine from extra wheat germ

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Protein of high biological value—at low cost

Yes, Ralston's extra wheat germ provides important protein, too. A fact worth remembering when use of meat, milk and cheese is restricted due to high prices and relief demands.

Good reasons why dietitians may recommend Hot Ralston for every breakfast!

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News Notes

Food and Nutrition Board Meeting. The thirty-first meeting of the Food and Nutrition Board of the National Research Council was held in the National Academy of Sciences building in Washington, D. C., on November 7 and 8, 1947. Dr. Frank G. Boudreau presided.

Various national and international aspects of nutrition were reviewed. The progress and plans of FAO were discussed by Dr. W. R. Aykroyd, Director of the Nutrition Division, and by Dr. R. H. Allen, of the Economics, Marketing, and Statistics Division. The food situation in Germany was described by Dr. Esther Batchelder, Head, Human Nutrition Division, Bureau of Human Nutrition and Home Economics.

Food planning by the U. S. in relation to the Marshall plan was discussed by F. B. Northrup, Director of the Price Support and Foreign Supply Division, Production and Marketing Administration, Department of Agriculture, in collaboration with Hollis Peter, Chief, Food and Agriculture Branch, Division of International and Functional Intelligence, Department of State.

The food conservation program under the President's Citizen's Food Committee was discussed by R. L. Oshins, Executive Secretary of the President's Cabinet Committee on World Food Programs.

Committee reports were as follows:

Dr. R. R. Williams, Chairman, Committee on Cereals, pointed out that the public health implications of Agene-bleached flour were taken under consideration by this Committee and, in accordance with the Committee's recommendation, the Board advised the Food and Drug Administration that, in view of the susceptibility of several mammalian species to the toxic effects of flour treated with nitrogen trichloride (Agene), there is a risk of human injury. A full statement of the Board's position in this matter appears on page 94 of this issue of the JOURNAL.

Dr. John D. Black, Chairman, Committee on Food Economics, brought up the question of whether the U. S. can spare the extra food for Europe without impairing the nutrition of our own people. The Food and Nutrition Board deliberated this question and answered "yes," but emphasized we shall have to reduce our consumption of animal products; reduce the cereals used in distilling, brewing, and milling operations; and institute economic policies to combat high prices. The Board favored all-out agricultural production and dealing with the economic hazards of surpluses by effective methods of distribution.

Dr. P. C. Jeans, Chairman, Committee on Dental Health, reported that the monographic review of literature on dental caries is nearing completion and that negotiations for publication are being undertaken.

Dr. Robert S. Goodhart, Chairman, Committee on Nutrition of Industrial Workers, gave reports of two subcommittees. A Subcommittee on the Relation of Nutrition to Physiological Stress in Industry has encouraged the formation of a new journal of applied physiology, to be published soon by the American Physiological Society. This subcommittee is also making a study of miniature job situations as a means of research in industrial physiology. "Outline of Research Problems in Industrial Physiology" has been published in *Occupational Medicine*. A study of the relationship between nutrition and industrial output is contemplated with special consideration to energy requirements.

A Subcommittee on the Relation of Nutrition to Toxic Reactions in Industry has undertaken an extensive review of the literature on categorized industrial compounds whose toxic effects have indicated nutritional relationships. A new Subcommittee on Industrial Feeding Management is being organized.

Dr. H. C. Sherman, Chairman, Committee on Dietary Allowances, reported that a revised printing of the National Research Council's "Recommended Dietary Allowances" is contemplated early in 1948.

A report by the Committee on Maternal and Child Feeding on "The Advisability of Breast Feeding" has recently been published. Dr. Icie Macy Hoobler, Chairman, reported that the Committee is continuing to review the current research and to organize conferences for the development of standardized techniques for studies in maternal and child nutrition.

Dr. C. G. King, Chairman of the Committee on Nutrition Surveys, stated that a monograph on nutritional surveys is nearing completion and will include chapters on objectives, dietary interpretations, demonstrated values, relation to community education, relation to professional training in medicine and public health, chemical tests, and clinical interpretations.

The report of the Committees on Milk Production and Distribution and Quality of Market Milk were given jointly by Drs. W. E. Krauss and G. M. Trout, their respective Chairmen. These committees have been meeting jointly for the purpose of determining the features of milk quality essential to public health, in contrast to regulations of milk quality designed primarily as trade barriers. The factors affecting the free movement of milk across trade boundaries, with regard to both economic and sanitary conditions, are being studied extensively with the hope of correcting some of the abuses.

Dr. E. L. Sevringhaus, Chairman of the Committee on Diagnosis and Pathology of Nutritional Deficiencies, said that a physician's handbook on the *Clinical Aspects of Deficiency States* is expected to be completed by May, 1948. The Subcommittee on a Nutrition Program for State Health Departments is being reorganized.

Feeding manuals for small hospitals and children's institutions are being prepared with the cooperation of the American Dietetic Association, according to the report of Dr. P. C. Jeans, Chairman of the Committee on Institutional Feeding.

Dr. C. G. King, Chairman, Committee on Survey of Food and Nutrition Research, said that the registry of current research activities in industrial, academic, governmental, and other laboratories is approximately 30 per cent complete. It is planned to issue early in 1948 a book which will present the subject material of food and nutrition research classified, indexed, and cross referenced as to the organization doing the research and to the personnel engaged therein. In connection with this committee report, Dr. George Gelman, Technical Director of the Quartermaster Food and Container Institute, which is sponsoring the survey, addressed the Board on new developments in food research.

Dr. P. R. Cannon, Chairman, Committee on Protein Foods, explained that

pick the one that's MADE FOR THE JOB!

You'll find the answer to any dish-washing problem you may have in the *complete* Wyandotte line.

Wyandotte Keego* is an excellent cleanser for washing dishes and glasses by machine. It removes stains quickly and helps prevent the deposit of further stains. A free rinser, it also counteracts water hardness.

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Wyandotte Neosuds* produces sanitary, film-free glassware without the necessity of hand toweling. Neosuds goes up to three times as far as ordinary soap powders, thereby reducing glass-washing costs.

For that final germicidal rinse or spray, after washing, there's ***Wyandotte Steri-Chlor****. Safe, efficient, and economical, Steri-Chlor is also approved for rinsing fresh fruits and vegetables eaten raw.

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this committee is being reorganized with the view of studying the significance of recent protein research in relation to economy of utilization, food processing, injury to protein, the interrelationship of amino acids, and the relation of protein metabolism to caloric requirements.

At a dinner meeting on November 7, Sir John Boyd Orr, Director-General of FAO, and The Rt. Honorable Lord Stanley Bruce, Independent Chairman of the World Food Council, addressed the Board with regard to the future prospects of the world food situation.

FAO News. In December, another step was taken by FAO to establish regional offices throughout the world. Work is already under way in China, the Near East, and Europe. Sir Pharoze Kharegar, formerly Permanent Secretary of the Ministry of Agriculture of the Government of India, has been appointed temporary regional adviser for the Far East with special reference to India. He was one of the Indian representatives at the United Nations Conference on Food and Agriculture at Hot Springs in 1943.

General Hawley in New Position. Announcement has been made that Dr. Paul R. Hawley has been named Chief Executive Officer of the Blue Cross and Blue Shield. He will assume his duties on April 1.

Dr. Hawley, until January 31, 1947, was Medical Director of the Veterans. He has also been appointed Chairman, Committee on Unification of Medical Services for the Armed Forces.

Dr. Hawley until January 31, 1947, was Medical Director of the Veterans Administration, and in this position completely reorganized the medical services of the VA. He will continue to serve the Veterans Administration in an advisory capacity.

For his excellent work with the VA, he was recently awarded the 1947 Gorgas Medal, an annual award for outstanding achievement in the field of medicine in the armed forces. Shortly before he left the VA, he was also honored by the Norwegian government, which bestowed upon him the Order of Saint Olav, commander grade, for his medical work with Norwegian forces through the government in exile in London during the war.

Before his appointment to the Veterans Administration, General Hawley served as Chief Surgeon of the European Theatre of Operations in World War II and had charge of the organization of medical services for the D-Day invasion.

Army Appointment. On December 5, Surgeon General Raymond Bliss conferred upon Major Emma E. Vogel the rank of colonel. She thus became the first Chief of the Women's Medical Specialist Corps and one of three women colonels in the Army. Colonel Vogel has been with the Army for nearly thirty years, having served in the first World War, and in 1942 was given the relative rank of major when she became the first director of physical therapists for the Army. Colonel Vogel is one of the few women to hold the Legion of Merit.

In her new position, Colonel Vogel will have the following duties: (a) consultant to the Surgeon General on all matters pertaining to the WMSC; (b) planning and initiation of training programs; (c) formulation of tables of organization and equipment, and planning and execution of operations pertaining to procurement; and (d) assignment and promotion of members of the new Corps.

The WMSC will have an authorized strength of 0.9 member for every 1000 persons in the total authorized strength of the Regular Army. In addition to the Chief, who will hold the temporary rank of colonel, the Corps will have three lieutenant colonels, who will head the three sections—Dietitian Section, Physician Therapist Section, and Occupational Therapist Section. There will also be a minimum of 24 majors and 385 other officers in the grades of second lieutenant to captain in the Corps.

Lenna Cooper Honored. On December 16, at a combined commencement and Founder's Day exercise, Drexel Institute of Technology, Philadelphia, honored Lenna Cooper, one of its early graduates by conferring on her an honorary degree of Doctor of Science. Lillian Hack of the Drexel faculty represented the American Dietetic Association on this occasion. Miss Cooper is now chief of the Department of Nutrition, Montefiore Hospital, New York City, was one of the co-founders of the A.D.A. in 1917 and was its first vice-president. She later served as fourteenth president of the Association. Miss Cooper, who is one of the outstanding pioneers of the dietetic profession, during World War I supervised the first dietitians serving in the Army. The author of several books and co-author of the widely-used text, *Nutrition in Health and Disease*, Miss Cooper has previously been honored by being chosen in 1928 as the outstanding woman in the state of Michigan in the field of science and has also received an honorary degree of Master of Home Economics from Battle Creek College, Battle Creek, Michigan. The American Dietetic Association extends its heartiest congratulations to Miss Cooper.

Institutes for VA Chief Dietitians. From December 1 through December 12, 1947, the first Institute for Chief Dietitians in Veterans Administration was held at the Kennedy Hospital, Memphis, Tennessee. Twenty dietitians representing the thirteen branch areas attended, including ten from general medical and surgical hospitals, seven from hospitals chiefly for treatment of neuropsychiatric patients, and three from hospitals for tuberculous patients. The purpose of this course is to acquaint the chief dietitians with newer trends in equipment, procurement of food, cost accounting, nutrition education, diet therapy, and other matters pertaining to the care of the patient. It is tentatively planned to repeat this course twice a year. Among the speakers were two members of the Veterans Administration Dietetic Advisory Council—Margaret Gillam, Dietetics Specialist, American Hospital Association, Chicago, and Helen McLachlan, Assistant Professor of Dietetics, St. Louis University, who discussed "New Trends in Equipment" and "Teaching Responsibilities of Hospital Dietitians" respectively. Members of the medical staff at Kennedy VA Hospital, who presented interesting papers, were: Dr. Benjamin R. Gendel, Chief, Hematology Section, who spoke on "Nutrition in Diseases of the Blood"; Dr. Charles E. Thompson, Chief, Paraplegia Section, whose subject dealt with "Nutritional Problems in Paraplegic Patients"; Dr. Wheelan D. Sutliff, Chief, Infectious Disease Section, who

Dr. R. S. Hanson, Drexel Institute of Technology, placing the doctor's hood on Lenna Cooper. At the left is Ardenia Chapman, Dean of Drexel's College of Home Economics, who wrote and delivered the citation for Miss Cooper.

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discussed "Nutrition in Infectious Hepatitis" and "Caloric Requirements in Fever"; and Dr. Nathaniel E. Rossett, Chief, Gastro-Intestinal Section, whose topic was "Nutrition of Patients with Peptic Ulcers". Other speakers included members of the personnel, dietetic, and social service staffs of Kennedy Hospital.

Talks by representatives from Branch Office No. 5, Atlanta; Branch Office No. 10, Dallas; and Central Office, Washington, D. C., were also included on the agenda. At the final meeting certificates for successful completion of the course were presented to each chief dietitian by Dr. Charles B. Spruit, manager of the hospital.

New VA Medical Director. On January 14, Dr. Paul B. Magnuson became Medical Director of the Veterans Administration. Dr. Magnuson first accepted an appointment with the VA in January, 1946, when he became Chief, Research and Education Unit. In this position he was responsible for establishing the Veterans residency program and for starting a program of research on little-known diseases of veterans. In September, 1947, he was promoted to Acting Chief, Professional Services.

Dr. Magnuson is a fellow in the American College of Surgeons, one of the founders of the American Board of Surgery, and was formerly professor of surgery at Northwestern University.

Child and Maternal Health. Discrepancies, inaccuracies, and controversial matters relating to methods for determining the nutritional status of mothers, infants, and children were discussed by an eminent group of authorities at a Conference called by the Children's Fund of Michigan in Detroit early in 1947. Dr. Icie Macy Hoobler Director of the Research Laboratory of the Children's Fund, served as chairman of the Conference.

Important questions were raised regarding the relative merits of different methods for obtaining a diet history, for calculating the nutritive content of the diet by shortened methods, for analyzing the food intake chemically, and for obtaining related laboratory and clinical data. In addition to considering improvement in experimental studies, the group also gave critical thought to the need for instituting educational programs among physicians, public health workers, and the public generally.

The *Proceedings* of the Conference which were recently published, will be welcomed by the many workers in the fields of research and applied nutrition who have expressed a need for consultation and advice. A limited number of copies of the *Proceedings* are now available for loan from the A.D.A. Library.

W.J.C.C. Workshop. On December 8 in Washington the Women's Joint Congressional Committee conducted a workshop to which the presidents of its twenty-one organizations were invited, together with their delegates and alternates. Dr. Helen A. Hunscher, President, and Gladys E. Hall, Executive Secretary, attended as representatives of the American Dietetic Association. At the meeting the purpose and functioning of the W.J.C.C. was explained. It is an organization devoted to serving as a clearing house for its twenty-one member organizations, and acts as a "look-out" for these organizations so that they will be informed of proposed legislation before Congress which pertains to their fields of interest.

New Office for Massachusetts Dietitian. Elizabeth K. Caso, Instructor in Nutrition, Harvard School of Public Health, has recently assumed the duties of Executive Secretary for the Massachusetts Public Health Association. This is a new position recently created by the Association.

Dietetic Interns. Dietetic interns from the *University of Kansas Medical Center* attended sessions of the Kansas City Southwest Clinical Society, October 6 to 9. On the subject of weight and health, Dr. Willard O. Thompson, University of Illinois, stated that rules should vary with the individual because there is a weight at which each person performs best. Dr. William D. Stroud, heart specialist from Philadelphia, suggested that medical treatment be tried first before recommending a total sympathectomy for patients with hypertension. In congestive heart failure, for best results the regime should not be too hard on the patient. In his opinion, vitamin E therapy for heart and vascular ailments is of little benefit.

Four dietetic interns graduated from the *Peter Bent Brigham Hospital* in September. They are: Mary Zoe Stahl, Melena Adams, Erika Westphal Visser, and Phyllis Folda. All but Miss Adams, who was married on September 27, have accepted positions since completion of their training.

Wednesday, December 17, 1947, the graduation dinner for the 1948 winter class of dietetic interns of *Michael Reese Hospital*, Chicago, was held at the Windermere East Hotel. Virginia Harger represented the A.D.A., and Sue Head, Director of Dietetics at Michael Reese, presented the diplomas. Graduates were: Shirley Conklin, Carol Des Jardins, Jean Farley, Betty Lane Gage, Betty Jane Smith and Mabel Walters.

More Courses in Hospital Administration. The school year, 1947–48, saw the opening of three additional courses for training of hospital adminstrators, bringing the total number of colleges and universities offering such training to nine.

This year eight students have been admitted to *Yale University*, where the course is given by the Department of Public Health with the cooperation of the Grace-New Haven Community Hospital. The total period of training will be twenty-one months, including nine months of academic training and a year's internship in an approved hospital.

At the *University of Toronto*, a course requiring the same amount of time is now being given. Curriculum covers public relations, administration of special hospitals, responsibilities and relationships of trustees, social and economic aspects of disease, and allied subjects.

Johns Hopkins University this year also offered for the first time a course in hospital administration. Although a limited number of students are enrolled this year, it is expected that the course will be in full operation by next fall.

American Hospital Association Affairs. Eighteen institutes for hospital administrative personnel, offering intensive hospital service education in short courses have been scheduled for this year by the American Hospital Association. Included are three institutes on dietetics. One was held in Miami in January. The others will be in April—one in Kansas City, Missouri, on April 12 and 13, the other in Buck Hill Falls, Pennsylvania, from April 19 to 23. Other institutes will cover the fields of personnel, nursing, medical records, housekeeping, purchasing, laundries, accounting, planning, and public relations. Tentative plans have also been made for institutes on pharmacy, hospital purchasing, and nursing anesthesia.

The A.H.A. has announced the appointment to its staff of Emily K. Johnson, former public relations director for the Nursing Information Bureau. Mrs. Johnson will assist in the expanded recruiting program for nurses and has had experience in similar work with the Cadet Nurse Corps.

Correction. In the December JOURNAL in the listing of the members of the A.D.A. Public Relations Committee, the position held by Bertha Nettleton was incorrectly given. She is Product Representative, Institution Products, Consumer Service Department, General Foods Corporation.

Caroline B. King. Word has been received in the JOURNAL office of the death of Caroline B. King in December in Philadelphia. Mrs. King, who was eighty years old, was one of the pioneers in the field of home economics and a pioneer in the profession of dietetics, having served overseas in a hospital near Meuse, France, as an Army dietitian in the first World War. For many years she was editor of the women's section, called "The Gentlewoman," of *Country Gentleman* magazine. One of her strongest interests was that of gardening, and she has written several books on this subject, the latest one being published in November shortly before her death. It is titled *This Was Ever in My Dream*.

Obituary. Words has come of the death of Rosemary M. Anderson on August 30, 1947. Mrs. Anderson had been a member of A.D.A. since June, 1943.

Material Available from Loan Library. The following publications have recently been received in the A.D.A. office and are available for loan from the library:

(*a*) *Diet Manual*, prepared by the dietary staff of Jewish Hospital, Cincinnati, Ohio.

(*b*) New and revised nutrition education material, published by the Division of Nutrition, Bureau of Maternal and Child Health, Pennsylvania Department of Health.

(*c*) *Diet Manual*, prepared for use in the Veterans Administration Hospital. Bronx, New York.

(*d*) *Formula Manual*, published by Stanford University Hospital.

Food Supplies for 1948. Minor declines in civilian food supplies for 1948 will result in slightly reduced supplies of nutrients. Even so, all nutrients will be in significantly larger supply this year than in prewar years, according to calculations of the Department of Agriculture. Little change is indicated from 1947 in per capita supplies of food energy, calcium, riboflavin, vitamin A, and ascorbic acid. Decreased meat consumption will reduce slightly the available quantities of protein, iron, thiamine, and niacin.

If consumption of fresh and processed vegetables should increase this year to meet demand shifted from other foods in relatively smaller supply, estimated quantities of several nutrients, especially vitamins A and C, would increase. This is not at all unlikely on the basis of high consumer demand for food, good prices to growers in 1947, and the expansibility of vegetable production.

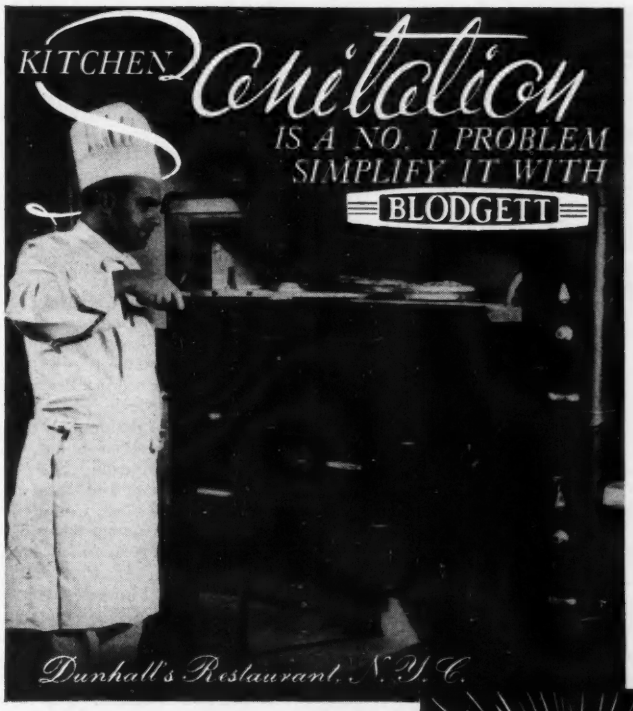
Pressure on Slow Heat. Investigations at the Maine Experiment Station have shown that pressure saucepans can be used on slow heat if the stove gives off heat fast enough to boil away 2 measuring cups of water in 30 min. The Maine Station suggests an easy way of testing this capacity. Measure 4 cups of boiling hot water in a 3-qt. saucepan, put on the cover, and boil on fastest heat for 30 min. Then measure the amount of water that is left. If less than 2 cups remains, the stove is fast enough for pressure cooking. On a coal or wood range, a pressure cooker may be useful as a time-saver rather than a fuel-saver. Because it takes longer to build up the pressure on a slow stove, tender vegetables are likely to cook too much.

Report. The Quartermaster Food and Container Institute in November issued a 94-page study titled *Feeding Problems in Man as Related to Environment*. The study is an analysis of the U. S. and Canadian Army ration trials and surveys from 1941 to 1946, and includes data derived from field tests conducted in arctic, sub-arctic, temperate, mountain, desert, tropical, and sub-tropical areas. The report is the result of collaborative efforts on the part of the Food and Container Institute, Harvard Fatigue Laboratory, and the Army Medical Nutrition Laboratory. Its authors are Dr. Robert E. Johnson and Robert M. Kark. Copies may be obtained free of charge by writing on organization letterheads to the Technical Information Office, Quartermaster Food and Container Institute for the Armed Forces, 1849 W. Pershing Rd., Chicago 9.

Nutritive Values of Potatoes Cooked in Pressure Saucepans. Work at the state experiment stations in North Carolina and Montana has shown that both time and ascorbic acid are saved when potatoes are cooked in a pressure saucepan rather than when they are boiled. In North Carolina, it was found that potatoes cooked in a pressure saucepan held 83 per cent of their original ascorbic acid in contrast to boiled potatoes which held only 75 per cent on the average.

Pared potatoes, out in quarters, were tested in Montana. When boiled they retain about 81 per cent of their original ascorbic acid; when cooked under pressure they retained 89 per cent. However, it is pointed out that in using the pressure saucepan care must be taken not to overcook potatoes or any other vegetable because overcooking can cause considerable vitamin loss.

Frozen Baked Apples. Among the newest cooked frozen fruit desserts are baked apples. To determine which varieties of apples were best for this purpose, the New York State Experiment Station recently baked eight common New York varieties, sweetened in four ways. The apples were cored before baking, with the stem end removed and the blossom end left in to hold the sirup during baking. The skin was peeled from the top of the apple, and the core cavity filled with the sweetening. The apples were then baked until soft at 400°F. After baking, they were cooled and packed in quart, tub-shaped cups between layers of Cellophane. Four different sweetening mixtures were used: white sugar and cinnamon; white sugar, lemon juice, and nutmeg; brown sugar; and maple sirup. The Cortland apple was most popular when tasted. The judges found its flavor superior with all four sweetening mixtures and gave it a high rating for color. Other apples which received high ratings were the Rome Beauty, Baldwin, and Red



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Twenty-Ounce. The judges preferred brown sugar and maple sirup as sweetening, voting favorably on six varieties with these sweetenings. Four received acceptability votes which had been sweetened with cinnamon and white sugar, but only two—the Cortland and Red Twenty-Ounce—were received well when sweetened with sugar lemon juice, and nutmeg.

Thiamine in Rice Lost by Washing. Tests at the Hawaii Experiment Station have shown that when brown rice is washed through five changes of water, even though the washing is rapid, 10 per cent of the original thiamine is lost. With partially polished rice, 20 per cent of the thiamine is lost through washing and cooking. Apparently, when the powdery rice polish is washed off, the loss occurs. To improve the nutrition and health of the people of Hawaii, who eat white rice as a staple food, many agencies in the islands have been campaigning for the use of brown unpolished rice, or at least the partially polished rice which contains about 70 per cent as much thiamine as the brown rice.

News of State Associations

Delaware Dietetic Association. In September the Delaware Dietetic Association had an informal picnic meeting at the A. I. DuPont Institute. The October meeting featured reports of the A.D.A. convention. In November a "meat extender" demonstration was given by a representative from the National Livestock and Meat Board.

New officers of the Delaware Dietetic Association are: President, Georgiean Geanopulos, Assistant Dietitian, Delaware Hospital, Wilmington; President-Elect, Cynthia Bishop, Chief Dietitian, Delaware Hospital; Vice-President, Emily F. Peters, Chief Dietitian, Veterans Administration Hospital, Wilmington; Secretary, M. Louise McKenney, Assistant Dietitian, A. I. DuPont Institute, Wilmington; Treasurer, Carolyn W. Medill, Assistant Dietitian, Delaware Hospital.

Georgia Dietetic Association. The Georgia and Altanta Dietetic Associations held a joint meeting on November 8 at the Henry Grady Hotel in Atlanta. The program included an address by Frances Koeth, nutritionist of the Southeastern area office of the American Red Cross, who spoke on "Disaster Call in New Orleans" and a discussion by Dr. Katherine Holtzclaw, head, Department of Home Economics, Georgia State College for Women, Milledgeville, of the food situation in Germany. Other speakers included Alice Kinney, coordinator of restaurant training; Richard Florrid, Executive Secretary of the Atlanta Restaurant Association; and Mary Popwell, Clinic Dietitian of the Department of Medicine at Emory University.

Kentucky Dietetic Association. The annual spring meeting of the Kentucky Dietetic Association will be held at the Brown Hotel in Louisville, April 9 and 10. State Section Chairman for 1947–48 are: Community Nutrition, Florence Imlay, University of Kentucky; Diet Therapy, Katherine Britton, Norton Memorial Infirmary, Louisville; Food Administration, Fonda L. Dickson, U. S. Public Health Service, Lexington; Professional Education, Sister Catherine Clare, St. Joseph Infirmary, Louisville.

On November 25, the *Blue Grass Dietetic Association* met at the Kentucky Utilities Hostess Room in Lexington. An illustrated lecture on new electrical equipment by Evelyn Thompson and her assistant, Marion Harris, home service representatives of the Kentucky Utilities, was enjoyed by twenty dietitians.

Kansas Dietetic Association. Thirty-two dietitians attended the fall meeting of the Kansas Dietetic Association held November 8 at Kansas State College, Manhattan. After a fried chicken dinner at the Hartman House, Dr. Lois Shultz, new head of the Department of Child Welfare, spoke on "Psychology and Children's Food Habits." Bessie Brooks West later conducted a tour of the new college residence facilities. Reports of the A.D.A. convention were given by members who were present for the Philadelphia meeting. New officers elected at this meeting are: President, Eunice Youngquist, superintendent of the Topeka High School cafeteria; President-Elect, Sister Regina Marie, Marymount College, Salina; Vice-President, Virginia Poews, Kansas University Medical Center, Kansas City, Kansas; Secretary Majorie Fuller, Wichita; and Treasurer, Leah Ascham, Kansas State College.

The *Kansas City Dietetic Association* began the year with a picnic at Roanoke Park in September. At the October meeting, Dr. Stanley Morrest talked on "Diet and Hypertension." He restricted the discussion to the essential hypertension cases and their accompanying complications of diabetes, uremia, cardiac involvement, and obesity. The low-sodium, acid-ash diet or one containing 1 to 2 gm. of sodium, the 200-mg. sodium diet, and the Kempner rice diet were reviewed. He expressed the hope that the 200-mg. sodium diet, which is a recent development, might prove to be an important aid in the control of hypertension although it requires rigid dietary control. Drugs used in treatment and the surgical procedure of sympathectomy also were discussed. Reports from the national convention were given at the November meeting, and Nancy Kenyon, from Westport High School, spoke on "The Schools Are Yours."

Massachusetts Dietetic Association. At the December meeting, Dr. Mark D. Altshule, Director of Internal Medicine and Research in Clinical Physiology, McLean Hospital, spoke on the subject of "Diet in Cardiac Disease." In his talk, Dr. Altschule said that diet is an essential part of the therapy for congestive heart failure. Since these patients have poor appetites, the food should be attractive and easily digestible and six small meals per day are preferred to too-large a meal at any one time. He also recommended ample amounts of protein and B-vitamins and the elimination of salt in the food in preparing and serving meals to these patients.

Active support was given the enriched flour bill by the Massachusetts Dietetic Association.

At the January meeting, Dr. Vlado A. Getting, Commissioner of the State Department of Public Health, talked on "The Hospital Survey and Construction Program."

New York State Dietetic Association. The 1947–48 officers of the New York State Dietetic Association are: President, Frances Dill; President-Elect, Alliene Mosso; Vice-President, Celestine Latus; Secretary, Marion Burnes; and Treasurer, Susan Paige.

Officers for the local associations are as follows:

Buffalo Dietetic Association: President, Florence Morton; Vice-President, Helen Sue Reynolds; and Secretary-Treasurer, Ursula Senn.

Central New York Dietetic Association: President, Dorothy Neal; Vice-President, Ruth Irwin; Secretary, Jeannette Pangmon; and Treasurer, Margaret Moore.

Rochester Dietetic Association: President, Louise Roderick; Vice-President, Margaret Grainey; Secretary, Phyllis Early; and Treasurer, Dorothy Andrews.

Ohio Dietetic Association. The names of officers of the local associations in Ohio for 1947–48 which have not been listed previously in the JOURNAL are as follows:

Akron Dietetic Association: President, Julia Dearchs; Vice-President, Mae O'Neill; Secretary, Josephine Weagley; and Treasurer, Mada Garn.

Cincinnati Dietetic Association: President, Frances Voris Krone; President-Elect, Marian Lage Jackson; Vice-President, Ann Turner; Recording Secretary, Lydia Colley; Corresponding Secretary, Joan Wilhelm; and Treasurer, Martha Lindner.

In Cincinnati a speakers' bureau has been formed for the purpose of providing facts about dietetics as a career. Some of the speeches available for presentation are entitled: "Dietetics—A Challenging Profession," "Your Future in Foods," "Choose a Profession You Can Use Every Day," and "Dietetics: An Art, A Science, A Career."

Oklahoma Dietetic Association. *Oklahoma City Dietetic Association* had their fourth annual business and dinner meeting at the Skirvin Hotel on November 8. Dr. Florence I. Scoular, Head, Home Economics Department, Texas State College Denton, spoke on "New Trends in Nutrition Research."

Pennsylvania Dietetic Association. The printed program of the year for the *Philadelphia Dietetic Association* reveals meetings planned for each month. For a number of the meetings, special groups were invited to be guests. For the December meeting, at which Dr. Robert S. Goodhart spoke on "The Public Health Aspects of Recent Advances in Nutrition," guests were public health nurses, Red Cross instructors, commu-

nity nutrition leaders, and social workers. In January, when Dr. Philip D. Bonnet, director, Lankenua Hospital spoke on "Public Relations," high school advisors and home economics students were invited to attend the meeting. In February the guests will be hospital administrators and members of the home economics association. At the March meeting the chief residents of hospitals and students in home economics courses will be invited to attend. The May meeting, which will be on the subject organization and operation of a dietary department, will serve as the occasion for entertaining superintendents of nurses and hospital administrators. The program of the year will end with the May meeting, a banquet at the Women's City Club of Philadelphia.

Texas Dietetic Association. The *Lubbock Dietetic Association* met in November. Mrs. J. N. Michie reported on the recent convention of the American Dietetics Association in Philadelphia. Twenty women were present.

Utah Dietetic Association. A program for the coming year has been organized by the Utah Dietetic Association, which includes plans for writing a manual of standardized diets that may be used in the large hospitals as well as the small hospitals throughout the state. A vocational guidance program is also to be carried out by the Association. At the November meeting in Salt Lake City, Hazel Stevens, State Board of Health, talked on "Dietetics in the small Hospital." A report on "The Therapeutic Diet" was given by Madonna Herbert of Dee Hospital, Ogden.

A picture, on the front page of the Salt Lake *Tribune*, November 27, featured chief dietitian, Lillian M. Larson, Salt Lake City Veterans Hospital exhibiting a huge Thanksgiving turkey prepared for patients.

Virginia Dietetic Association. On Friday, October 31, the Virginia Dietetic Association met in Richmond at the Hotel Richmond. At the business meeting in the afternoon, Marguerite Pettee, reported on the A.D.A. meeting in Philadelphia.

During the interval between the business meeting and dinner, the members were welcomed to an "open house" sponsored by some of the local business associates.

Dinner was held in one of the dining rooms of the hotel. Dr. Wyndham B. Blanton of Richmond, a specialist in the field of allergy, spoke.

Wisconsin Dietetic Association. The December meeting of the *Milwaukee Dietetic Association* was a Christmas dinner at the Medford Hotel. Each member was requested to bring a Christmas tray favor which was used as part of the table decorations. Exchange of ideas was further aided by Mrs. Frank Porter of the Junior American Red Cross, who explained and showed samples of work done by boys and girls in scoools for Veterans Hospitals, Old Folks' and Convalescent Homes, and so on. The dietetic interns from Milwaukee County Hospital displayed Christmas tray favors made entirely of food.

After dinner the group divided and toured the Milwaukee Gas Light Company and the Wisconsin Electric Power Company to see the Christmas exhibits of cakes, cookies, and candies on display. Gertrude Berg, Milwaukee Gas Light Company was in charge of the meeting.

The resignation of Virginia Pflaum Milwaukee Children's Hospital, as Secretary of the Milwaukee Dietetic Association, necessitated the appointment of another secretary. Margaret M. Krauser was selected.

News of Advertisers and Exhibitors

The Walter Baker Chocolate and Cocoa Division of *General Foods Corporation* is building a new, fully air-conditioned warehouse at Dorchester, Massachusetts. It will provide additional refrigerated storage space needed to permit the Division to operate at capacity throughout the summer months, which in turn will assure employees more steady employment without seasonal layoffs. Up until now, summer humidity and heat has sometimes slowed down the manufacturing and storing of chocolate products. The new warehouse is scheduled for completion in March. . . . Another division of *General Foods*, the Franklin Baker Division, has announced that a new desiccated coconut plant has been completed in San Pablo, 50 mi. south of Manila in the Philippine Islands. The new plant replaces a similar unit which was bombed and burned by the Japanese in December, 1941. First shipments from the new plant arrived at the processing plant in Hoboken, New Jersey, in October. It is expected that exports of coconut from the Philippines should soon reach prewar levels and that industrial users will be able to obtain increased supplies. . . . *Pillsbury Mills, Inc.* recently put on the market four new cake mixes for institutional uses. They are chocolate cake, lemon gold cake, spice cake, and gingerbread. They are packaged in 25- and 100-lb. paper sacks. Pillsbury has also issued a new booklet entitled *Bakery Art* which describes and gives methods for preparing Pillsbury Sweet Doh Mixes, Donut, cake, pie crust, hot bread, griddle cakes, and waffle mixes. Prepared to help the baker, several pages are devoted to illustrating the various forms and shapes which rolls and baked goods may take. . . . *The National Live Stock and Meat Board* recently issued a second edition of *Cooking Meat in Quantity* which has been revised and enlarged. The information is presented in outline form and includes basic information on large quantity meat cookery, as well as time tables and illustrations. An appendix gives data on amounts of meat to buy for 100 servings, charts showing various cuts, and recipes. . . . Two new improved gas range home models have been distributed to dealers of *Detroit-Michigan Stove Company*. The height of the cook-

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ing top in each model has been increased to 36 in., and they are constructed so that the range can be located flush to a wall of the kitchen. . . . *General Mills, Inc.*, has announced, through a booklet "Aids to a Health and Nutrition Program" that it will make available in limited quantities educational materials for a nutrition education program. This booklet lists and pictures the aids which will be distributed, including an *Administrator's Handbook*, a *Manual for Teachers in Elementary Grades*, booklets for pupils' use in reading and other classes, and posters. . . . A new insert for the catalogue of the *Cleveland Range Co.* has recently been issued which features the various sizes and models of the Steam-Chef. . . . *Market Forge Company* is now marketing a new line of stainless steel steamer baskets. They are seamless in construction, made from heavy gauge stainless steel, and have a polished finish both inside and out. Rounded corners make for easy cleaning, as well as greater ease in stirring or turning foods. The new baskets are available in two different sizes and shapes. . . . A new teaching kit for the grades has been prepared by *Ralston Purina Company*. In it are included materials for the teacher, for the pupils, and for class use. The professional helps for teachers include two, sixteen-page booklets titled "Brief Facts About Breakfast and Wheat" and "Units of Teaching on Breakfast." For class use fourteen life-size pictures of foods suitable for breakfast are included in the kit, as well as a wall chart showing a cross section of a grain of wheat in full color. For pupils, a paper place mat suitable for coloring has been prepared, in addition to a coloring book for the elementary grades and a reading booklet for pupils in the fourth grade and above. The material in this kit was developed in partial fulfillment of the requirements for a doctor's degree by a home economics student working under a Ralston fellowship. The materials were used and evaluated by 134 classroom teachers. A kit is also available for use in high schools, colleges, and adult education.

Army Announcements Concerning Personnel

The following Medical Department Dietitians were promoted during December, 1947:

Second Lieutenant to First Lieutenant

Lanou, Frances M., R-2446
Conover, Margaret E., R-2491
David, Catherine D., R-2483

The War Department has released the following official list of names of Medical Department Dietitians (not previously announced) who have been separated from service:

Captain

Waugh, Vera D., R-981, 200 W. 58th St., New York, N. Y.

First Lieutenants

Church, Doris B., R-2439, 14041 Mansfield Ave., Detroit 27, Mich.
Davidson, Mary L., R-2139, 413—16th Ave., N., St. Cloud, Minn.
Gable, Clara A., R-2461, Bryant, Ind.
Hager, Marijane, R-2283, 323 Sullivan St., Elmira, N. Y.
Paradise, Ann E., R-2434, 1333 Quincy Shore Blvd., Quincy 69, Mass.
MacRae, Dorothy M., R-10010, 148 Vista Dr., Jackson, Mich.

Correction. The following Medical Department Dietitians have not been separated, as previously reported:

First Lieutenants

Bourquin, Martha J., R-2460
Edwards, Wanda Cobb, R-2036

New Appointments, Veterans Administration

The following hospital appointments of dietitians (not previously announced) have been made by the Veterans Administration.

Name	Position	Location
	Branch No. 1	
Doris Fraser	Staff Dietitian	Framingham, Mass.
Virginia Williams	Staff Dietitian	Framingham, Mass.
	Branch No. 9	
Mattie L. Robertson	Staff Dietitian	Excelsior Springs, Mo.
Theodora Stebbins	Chief Dietitian	Wadsworth, Kans.
	Branch No. 10	
Alice B. Jensen	Staff Dietitian	Jackson, Miss.
Velma F. Lanier	Staff Dietitian	McKinney, Tex.
	Branch No. 12	
Virginia Gertmenian	Staff Dietitian	Van Nuys, Calif.
Kathryn Tondreau	Staff Dietitian	Oakland, Calif.
Adelene Dorward	Staff Dietitian	Tucson, Ariz.

Grades of Meat Today

If farmers cooperate in the current grain-saving campaign, much of the beef and lamb on the markets will come from animals which are slaughtered at lighter weight, before they have been heavily fed on grain which builds up their weight by producing fat. This will mean less Choice grade beef and more of the Good, Commercial, and Utility grades.

Since meat is graded on the basis of its appetizing qualities rather than on its nutritive values, the lower-grades of meat frequently offer greater nutritive value than the top grades. The leaner beef from grass- or silage-fed animals usually sells as lower Good, Commercial, or Utility grade, and pound for pound, these grades have more protein, minerals, and vitamines while the Choice or high Good grades have more fat.

According to Dr. L. A. Maynard, Director, School of Nutrition, Cornell University, the extra fat in choice beef or lamb is a luxury, and he states that beef cattle and lambs should be fattened on grain only enough to produce meat of acceptable quality. "There is no nutritional justification for feeding meat animals to produce fat, for vegetable fats will serve as well in the diet and are produced more cheaply. Further, much of the fat of highly fattened animals is wasted instead of being consumed as meat."—*From Food and Home Notes, December 24, 1947.*